

POPULAR Computing WEEKLY

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28 March - 3 April 1985

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Vol 4 No 13

Confusion hits US

IBM has pulled out of the US home computer market, only one week before Atari launches the first of its new 128K machines.

At the same time Commodore has delayed the introduction of its new LCD portable machine and Atari has scrapped plans announced in January for an 8-bit portable

machine.

IBM has surprised the American home computer market by announcing last week that it is to stop production of its home computer, the PC Jr, in April.

The PC Jr was by no means IBM's most popular machine, but sales had improved significantly after IBM modified

its keyboard, much criticised at launch. It is thought that margins were too slim on the PC Jr to justify continuing production.

Currently, competition for the home market in the US is between IBM, Apple, with the IIe and IIx and the Commodore 64.

In the last year or so, a number of other companies have pulled out, including Coleco, Mattel, Timex and Texas Instruments.

Of the three machines currently dominating sales, the Commodore 64 is by far the cheapest. However, Commodore International is having its own problems at the moment. After dismal financial results (see *Popular Computing Weekly*, February 21) its share price has fallen dramatically. Six months ago, it was around 20 dollars, now it is down to 10.

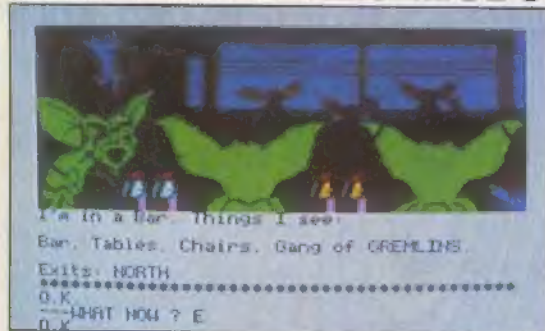
Commodore's image has not been improved by the

C128, positioned to compete directly in the US with the PC Jr and Apple IIc, will now only have the Apple model to contend with.

"The C128 should be in the stores in May," said Susan West, of Commodore International. However, she declined

continued on page 4 ▶

Gremlins are here



THE OFFICIALLY licensed computer game of *Gremlins* - the record-breaking feature film - has now been issued by Adventure International.

Gremlins, the game, is a graphics adventure featuring simple animation in some of the sections follows the characters and settings of the film quite closely. The player is Billy, hero of the film whose task it is to save the town of Kingston Falls from take over by Gremlins.

Although there are versions of the game for the Spectrum, Commodore 64,

Commodore C16, BBC and Electron, only the first two machines' versions feature graphics, using the detailed comic-book style found on other Adventure International games such as *Hulk* and *Spider Man*.

The text input for the adventure is sophisticated allowing for multiple-statement lines and full sentences.

Prices for the graphics versions of the game are £9.95, other versions £7.95.

Details from Adventure International, 85 New Summer Street, Birmingham B19 3TE.

Consortium set to buy Oric

IT NOW seems certain that Oric Products International will eventually be bought by the consortium made up of its former managing director, Barry Muncaster, Peter Harding, head of Oric Products Export, and ASN, Oric's distributors in France (see *Popular Computing Weekly*, March 21).

A contract is currently in the hands of the consortium's lawyers, and it is expected to be signed this week.



announcement that its LCD portable machine, launched at CES in Las Vegas in January and due out in the Spring, has now been put back until September at the earliest.

However, IBM's move does mean that Commodore's

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INSIDE

QL RAM BOARD REVIEW - AMSTRAD BUGGY OFFER



THE LIVING BODY

Consultant Professor Christiaan Barnard

Building on the tremendous success of Channel 4's *THE LIVING BODY* now regularly attracting more than 1½ million viewers a week, Martech is proud to present *THE LIVING BODY* for the microcomputer.

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View

IBM's decision to pull out of the US home computer market comes as something of a surprise.

In this country IBM is not a name naturally associated with home computers but in America where the average disposal income is far higher, its PC Jr sells mainly to individual purchasers, competing with the Apple II models and Commodore's C64.

When it was launched 18 months ago the PC Jr model got off to a bad start with poor reviews and disappointing sales. However, late last year IBM took heed of the criticisms and modified the design. Following the improvements sales began to pick up and prior to IBM's unexpected announcement its future seemed assured.

IBM gave as its reason for discontinuing the PC Jr the small margins on home machines - not enough profit.

It is interesting that production will cease in the same week as Atari, quintessentially the aggressive consumer electronics company, embarks on a major new attack on the domestic market.

The maxim in business that 'nobody ever got fired for buying IBM' doesn't apply when selling into the home. Prestige, construction quality, warranties, insurance, maintenance contracts, and the security of knowing the company will still be in business in ten years are far less important in the home computer market than price.

IBM's decision is a lucky one for Commodore, Atari, Apple and even Sinclair. If it had the whim to do so, IBM could easily put all the others out of business. Forecasts predict that within two years the annual turn-over of IBM will overtake the Gross National Product of Australia and New Zealand combined.

POPULAR Computing WEEKLY

Vol 4 No 13

Presents...

News > QL's US launch delay

Special Tape Offer > Tony Bridge's QL adventure system on microdrive

Software Review > Budding Entrepreneurs stand by your Amstrad CPC464's > Aquaracer on the CBM64

Streetlife > Graham Taylor meets Danger Mouse's newest sidekick - Sandy Mackenzie of Creative Sparks

Hardware Review > Roger Thomas checks out the Simplex Data 256K Ram for the QL

Stargame > A strategy game for megalomaniacs - try Kingdoms on the CMB 64 by James Marden

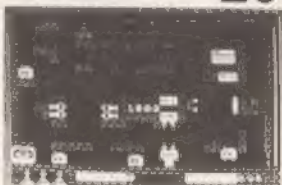
Spectrum > Keep track of your programming time using this clock routine by Mark Snell

The QL Page > An invaluable utility using Archive and Quill - Mail Merge by Don McAllister

BBC and Electron > The mysteries of the Tarot revealed on the BBC B by Robert Watson

Amstrad > Your chance to run the Popular Buggy on the Amstrad CPC 464 - John Billingsly shows how

Best of the Rest > Letters 6 > Open Forum 36 > Music Box 36 > Book Ends 37 > Arcade Avenue 38 > Adventure Corner 40 > Peek & Poke 43 > Top Ten, Diary 50, Readers Chart 50 > New Releases 51 > This Week 51 > Puzzle, Ziggurat, Hackers 54



Futures...

Synthesiser on Commodore 64... Part 1 of a super-fast index creator for the BBC... all at sea on the Amstrad

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ABC

56,052 copies sold every week
(Jan-June 1984 ABC)

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Computer Trade Association Magazine of the Year

US launch of Sinclair QL further delayed

SINCLAIR RESEARCH's managing director Nigel Searle, is to next month move to the US.

This follows a further delay in the US launch of the QL - now scheduled to go on sale on a mail-order basis in May.

Nigel Searle will head the operation, starting on April 1. He originally set up Sinclair's US office in Boston three years ago, before becoming managing director of Sinclair Research in the UK.

His place in the UK will be filled by two joint managing directors. Dave Chatten, who was Sinclair's product director, becomes managing director in charge of computers and Bill Jeffrey, formerly divi-

sional director at Mars Electronics joined Sinclair as managing director for TV and communications on March 1.

Both will report to Sir Clive Sinclair as chief executive. Sir Clive is apparently keen to take a bigger part in the day-to-day running of the company.

● Following the disappointing recent profit figures and management changes Sinclair shares have been reported to be changing hands in off-market dealings at around half the price paid by investors two years ago.

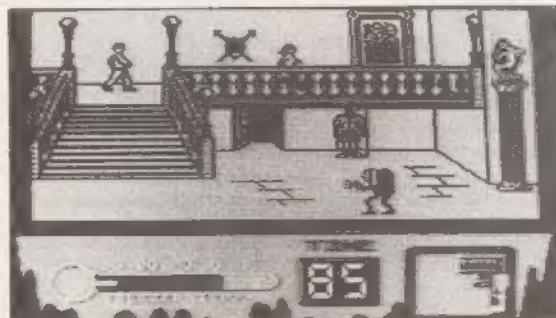
Enterprise plans 128K for June

THE 128K version of the Enterprise computer is now scheduled for launch in June.

Software, too is beginning to appear for the 64K model which went on sale in January.

Twelve programs are currently available which include third-party products such as *Heathrow ATC* and *Fantasia Diamond* from Hewson Consultants, *Level Nine's Colossal Adventure*, and educational programs from Widgeit and Bournes.

Rocky horror from CRL



CRL's much-hyped *Rocky Horror Show* computer game is beginning to take shape, and the company expects to launch it soon.

Uncertainty following QS moves

QUICKSILVA is moving premises from Southampton to London. The company will be housed in parent company Argus Press Software's offices in the West End.

None of the eight staff at Quicksilva, including managing director Rod Cousens will be moving to London and most of the employees have already been made redundant. Rod said, "I won't be going to London with the company, but at the same time, I certainly don't want to leave the software industry."

Argus maintains that the move will be more convenient for Quicksilva with tape manufacturers and duplica-

tors nearer to hand.

● Soft Aid, the compilation tape organised by Quicksilva's Rod Cousens in aid of the Ethiopian Famine Appeal, has so far sold



around 40,000 copies and raised over £100,000 for the Appeal, just three weeks after its launch.

PC Jr dropped

◀ continued from page 1

to comment on the implications of Commodore's falling share price, or on speculation about the Amiga machine.

Rumours - hotly denied by Commodore - are currently circulating the US that Commodore and Amiga are arguing over the terms of Commodore's acquisition of the company - the price being based on Commodore's share price when the stock was evaluated at around \$20.

However, IBM's withdrawal may be good news for Apple, which recently had to suspend production on its computers because stocks were too high.

One company that is confident of benefiting from the moves is Atari. Jamie Copeland, vice-president of marketing at Atari Worldwide said, "This news can only be healthy for Atari - our 130XE machine will be shipped in the US next week and priced at around \$150. It's as powerful as the Apple machines, yet the Apple IIc is \$800. The 130 II is being shipped at the end of April."

However, Copeland did admit that the 65XEP, the portable machine in the 8-bit range would not now appear. "We're doing a 16-bit version instead - that'll probably appear in June."

C64 gets new Basic extension

MICRO COMPONENT Trading has developed a new extended Basic for the Commodore 64.

"MCT Basic is similar to Basic 3.6, as used on the C16 and Plus/4," said Dave Viner of Micro Component Trading. "It gives you everything that 3.6 does, plus sprite and sound commands for the 64."

MCT Basic is available only on cassette at the moment, but a Rom cartridge version is in development. The Basic leaves 26K free for programming - with the Rom version, MCT hopes around 48K will be available.

The cassette version of MCT Basic costs £10.95. No price details are yet available for the Rom-based version. Details from Micro Component Trading, Group House, Fishers Lane, Norwich, Norfolk. (0603 668968).

James Scoular

FIREBIRD'S publisher, James Scoular, who featured in our *Street Life* column recently, tragically died from a heart attack after a short illness last week. *Popular Computing Weekly* would like to extend its sympathies to all at Firebird and James's family.

Firebird launches dodos

FIREBIRD is putting together a compilation games tape with a difference.

The package, entitled *Don't Buy This!* is a collection of the five worst computer games that have been submitted to the company.

"The games are so awful that they're actually funny," explained Firebird's James Levy. "We're thinking of making the tape the first in a 'lead' range of games."

The games on the tape are called *Race Ace*, *Fido 1*, *Fido 2*, *Weasill Willy* and

Fruit Machine.

"The programmers are going to do quite well out of this," said James. "For a start, we will protect them with anonymity, but they will be getting royalties."

"*Don't Buy This!* will be available for the Spectrum, Commodore owners will be relieved to hear we have no conversion plans."

The package will, seriously, be part of Firebird's silver range at £2.50, and launched "somewhere around April 1."

Wristwatch terminal from Seiko

SEIKO has announced a wristwatch terminal that can be connected to a micro via a built-in RS232 interface.

The watch - called the RC-1000 - has a two-line liquid-crystal display, totalling 24 characters, and can be used for a variety of functions including an electronic

memopad and diary. The watch has a capacity of 80 screenfuls of data, approximately 2K Ram.

All data is entered from the micro keyboard, and downloaded to the watch via the RS232 port. Data can also be output from the watch to a printer.

The package includes the connecting cable and software on either cassette or disc.

At present, the only home computer catered for is the



Electron discs alternative

Commodore 64 but software should be available for the Spectrum and Acorn micros with the next eight weeks.

The RC-1000 is the latest in the growing line of watches that provide databank facilities to the user.

Seiko will also be launching another device, the UC-3000 watch which has a 2K memory and provides a diary and memo facility with all data being entered from a separate miniature keyboard provided with the watch.

Prices are expected to be £119 for the terminal watch and £129 for the UC-3000. Both should be in the shops by late June.

AN ALTERNATIVE to Acorn's Plus 3 disc drive interface for the Electron has been launched by Cumana.

Cumana's Electron Interface plugs into Acorn's Plus-1 expansion module. Firmware within the interface gives facilities for a real-time clock. It is compatible with both 5¼ inch and 3½ inch double-density drives.

The interface costs £149.95, or £129.95 if a Cumana disc drive is bought with it. Details from Cumana, Pines Trading Estate, Broad St, Guildford, Surrey (0483 503121).

Exclusive QL Offer

The QL Adventure System

Popular Computing Weekly offers a chance to buy a Microdrive copy of Tony Bridge's adventure writing QL program - *The QL Adventure System** - available for only £5.45.

The program is in two parts - *The Adventure Generator* used to write your adventures, and *QAD*, to run them.

Without any programming knowledge, the *Adventure Generator* can be used to plan a text/graphic adventure with ease, using sophisticated menu-driven prompts, the generator uses the full power of the QL to create any scenario the user may require, with up to 288 locations.

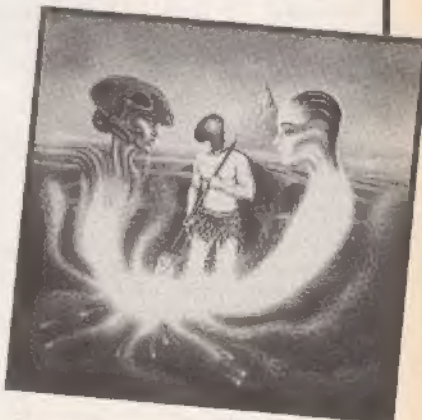
The resulting design is then used in the second *QAD* program - a text/graphic game in which the player can indulge him or herself in plenty of exploration and combat.

A short routine is also included in the cartridge to enable the creation of graphics for use in the adventure.

How to order

To order your copy of Tony Bridge's *QL Adventure System*, simply fill in the form below and send it off to 'QL Tape Offer', *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP, together with a cheque or postal order made out to Sunshine Publications for £5.45 (£4.95 plus 50p post and packing.) Please allow 28 days for delivery. Closing date 12 noon, Friday 26 April.

Name
Address



*Adapted from a system developed and published in the Tony Bridge and Richard Williams Sunshine book, *Sinclair QL Adventures*.

Modern warning

I wish to issue a warning to future modem owners who are interested in subscribing to Prestel, the British Telecom Viewdata Service.

The warning is: watch out, you may be in an area which cannot get Prestel at local call rate.

It was only after I had subscribed that I found out that the whole country was not at local call rate. I am now going to start a battle to fight for more local call access points because having contacted my Telephone Area Office I was told that as British Telecom had been privatised that they might now have trouble making remote areas local to Prestel. The reason given for this was because other Viewdata services and databases might consider this unfair. Then I was told that if it was ever done it would probably be 'months or even years from now'.

It looks as if I will have to sell my modem soon as our telephone bills are 'through the roof'. If any other Prestel users who do not get the service at local call rate would like to contact me over Mailbox to exchange views on this, my Mailbox number is 082422531.

I shall fight on.

Robert Evans
Brynglas
Wrexham Road
Ruthin
Clwyd

Putting the boot in

I'm finding it increasingly difficult to reconcile the Douglas Adams who wrote *Hitch-hiker's Guide to the Universe* for the electronic wireless with the Douglas Adams who co-operated with Infocom on the production of the video game of the same name.

The former was intensely passionate about his creation and would never have dreamed of denying it to anyone, and particularly his original supporters. The latter has gone straight for the megabucks, and stuff the people initially responsible for his success.

In allowing the production

of *Hitch-hiker* in a format non-compatible with the majority of British micros (Apple II) he's putting the boot into his own fans, the British computer industry, and for all he cares, the country itself.

Deke Roberts
13 Temple Road
Temple Cowley
Oxford

Expensive extra?

In your issue of March 7 you repeat the allegation the CP/M is an expensive extra for the Amstrad computer. It is in fact included as standard with the DDI-1 disc interface, which would be essential to operate Cobol anyway.

Looking at my Microfocus and Microsoft (for both supply a Cobol for 8-bit CP/M) price list shows that they both exceed the cost of a CPC484 (including monitor) plus a DDI-1 disc interface!

R Perry
Technical Manager
Amsoft
Brentwood House
169 Kings Road
Brentwood
Essex

Two-day task?

Writing to your magazine seems to be becoming something of a habit. However, I feel I should reply to Chris Powell.

My previous letter did not "bash" the QL or the 68000. It merely stated that the market had to be bigger before it would support a larger number of programs.



I will repeat that learning to use a new processor chip is a two day task for a proficient programmer.

Microprocessors operate in fundamentally the same way. It is merely a case of looking at the architecture of the machine, seeing what addressing modes it can handle, and checking out the few machine specific instructions. The fact that Mr Powell is unable to do this in two days does not mean that others can't.

Andy Lawrie
Technical Director
Mikro-Gen
23a Station Road
Ashford
Middx

Spectrum power

I've just read Vol 4 no 10 in which D Walker wants to evaluate expressions held in strings on the Sinclair QL which apparently can be quite easily achieved using the VAL command on the Spectrum.

I think that this shows the power of the Spectrum rather than any 'serious limitation' of the QL since many Basics (eg, the well-respected Microsoft Basic on the TRS90) cannot handle such operations.

Andrew Pritchard
20 Finlay Gardens
Crouch Oak Green
Addlestone
Surrey

More frustration

Articles that I read in *Popular* that continue the piracy debate or announce the latest protection device leave me more and more frustrated.

The addition of micro-drives to a Spectrum have vastly improved the enjoyment of computing for many people, but anti-pirate devices destroy the efficiency of it all and leave us tearing our hair out struggling through the tricky loadings, etc, trying to move programs onto microdrive.

If we could seriously believe that protection systems have reduced piracy I would be a little more understanding, but evidence suggests

they have not. In your columns I have repeatedly seen suggestions to publishers to include a save-to-microdrive option, but very few have done so.

Even Sinclair themselves have been obstructive by trying to suppress the publication of details in the Interface 1 Rom in order to preserve program security, thereby cutting their own throats to allegedly save software companies from piracy.

The outcome of this is that most microdrive owners must resort to a microdrive back-up package which inevitably includes a tape copier as well.

Barry Blitz
35 Villa Road
London SW9

Illustrated method

D Walker (letter, March 7th) poses an interesting problem where the QL's coercion of strings to variables doesn't seem to make up for the lack of a VAL command. There is a way around this, but I don't claim any elegance for it.

The program below illustrates the method, and could easily be converted into a procedure:

```
100 a$ = "54*34/10"
110 DELETE mdv1-string-fil
120 OPEN-NEW #4,mdv1-string-fil
130 PRINT #4,"160 a=" &a$
140 CLOSE #4
150 MERGE mdv1-string-fil
160 REMARK this line will be replaced
170 PRINT a$,a
```

On running, the string a\$ is "54*34/10", variable a becomes 183.6, and a listing of line 160 shows it changed to: 160 a=54*34/10

On another subject, has anyone managed to use the printer option in Psion's QL Chess successfully? Mine prints gibberish, although the printer works very well with the bundled software.

WD Software
Hilltop
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QUASIMODO

Quasimodo likes bells. They make him feel good – they make him happy – they are his friends.

All Quasi wants is to be left alone, but those nasty soldiers think that he stole the royal jewels. Quasi didn't steal them!

Quasi wants the soldiers to leave him alone. They fire nasty arrows at him. Quasi doesn't want to, but Quasi will throw big rocks at the nasty soldiers.

Quasi knows a secret! Quasi knows where the jewels have been hidden in the castle and only Quasi can climb there.

They better leave Quasi alone, 'cause Quasi is getting mad. Quasi better hurry and find the jewels. Not much time. Quasi sees lots of soldiers. Quasi has lots of rocks.

Now the noise has stirred up the bats in the belfry. The bats are mean, they make Quasi fall down. Quasi better jump away from those bats.

Quasi thinks he got up on the wrong side of the bed today.

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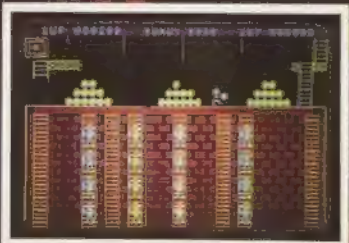
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Assimilate. And Stimulate.

From Sunshine, a book all about simulation techniques on Sinclair's new QL, written with the unique benefit of actual QL experience. Many entertaining, intriguing chapters explain how you can get your QL to output what you need, to help your hobby, your business — or your curiosity. Inside, you'll find how to develop the ability to fully analyse problems and confidently develop your own simulations. And you'll be able to stretch the potential of your new QL to the limits.

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AND COMMODORE 64

Catapaulted

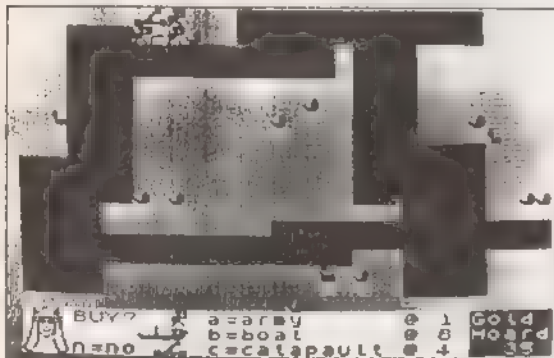
Program *Viking Raiders*
Price £2.50 **Micro Spectrum**
48K Supplier Firebird Software, Wellington House, Upper St Martin's Lane, London WC2H 9DL

From the mists and ice floes of the north they came; long ships striking terror into all who beheld them. That was the reality, but Egbert-the-Execrable and his cohorts are more 'Noggia the

pens whenever they encounter a drinking horn and go uncontrollably berserk.

The character block graphics are unsophisticated but serve their purpose, and a colour monitor is needed to differentiate the armies. Movement and missile fire are by an eight point compass, doing away with grid references, thank Odin!

There's an economic element to the game too, as human players have limited wealth to equip themselves, though gold can be found in chests around the map. The



Nog' than rape and pillage.

Still, *Viking Raiders*, Firebird's first wargame, is option-packed as well as action-packed, including freezing fjords, battling boats, catapults and castles and up to four armies played by humans or computer. It's enough to drive a Norseman to drink... which is what hap-

computer has boundless riches and unlimited catapult range, presumably to compensate for its inferior tactics.

This is what board wargamers call a 'beer and pretzels' game; it's not too serious, but it's fun to play.

John Minson



Identified

Program *French on the Run*
Price £9.95 **Micro BBC B Supplier** Silversoft

Imagine you are stuck in occupied France during World War II... to avoid the Gestapo and reach freedom you must pass as a native. Is your French good enough? Can you recall your stolen identity card details when under interrogation?

With superb timing Francis Clarke and Gabriel Jacobs have produced the most novel and enjoyable way yet of revising French conversation. The scenario is a genuinely exciting adventure game with the key to

progress - or to nasty death - being how well you recognise accurate French. There are enough choices and variations to make repetition a pleasure.

At each decision point you are offered four options. After each choice made the false answers vanish and if you have chosen correctly a "ping" announces your success and you go on. A rude "burp" indicates a mistake and probable doom depending on where you are in the game.

The cassette comes complete with attractive loading screen playing *Under the Bridges of Paris* - terribly atmospheric.

Dave Watterson



Phonetic

Program *Varitalk* **Price** £5
Micro Spectrum 48K Supplier ITS Software, 25 Park St., Cirencester, Glos.

Apparently 'MIA2R1E1' means 'Mary' - at least it does to *Varitalk*, a speech synthesiser which uses phonetic codes. A speech synthesiser in *Software Reviews*? Yes, because this program stems from its author's refusal to pay £30 for the hardware equivalent.

Despite rather insubstantial documentation speech is simplicity itself. Load the machine code and you're returned to Basic; speech goes into a string and is summoned

by a *Usr* command.

You can use the phonetic codes very easily from the enclosed list. For example there are different 'A' sounds from 'Fate' (A1) to 'Pause' (A6); A2 is given as 'Bare' so it's also used for 'Mary'.

The speech sounds rather tinny but is recognisable, despite some echo. It's also somewhat soft through the internal speaker. Though the instructions don't say so, Basic programs can be *Saved* and *Loaded* as normal, but *Varcode* must be re-loaded first, leaving only 9K of memory which limits its uses.

However, at this price it's fun. I've booby-trapped mine to swear at anybody who touches it.

John Minson



Into space

Program *Buck Rogers* **Price** £9.95 **Micro Commodore 64 Supplier** US Gold Ltd, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham.

Hot from Sega the arcade winners" (even though it was released in 1983 in America) comes *Buck Rogers* - a space

terrain and enemy installations scrolling towards you. As you dodge and weave through radar towers, a certain number of aliens have to be destroyed.

After annihilating three waves of intruders, you move out into space and do battle; this next stage is similar to the intermediate level on *Zaxxon*. Finally, you have to destroy the enemy mother-ship.

Buck Rogers might sound exciting, but I found it a bit



adventure set in the 21st century. I don't know if you can remember the arcade version, but I loved it - fast-moving, space-zapping action. Now *Buck Rogers* is available on the CBM 64. Strap yourself in tight, though, because as we all know, life's tough on the space highways.

The screen shows your spaceship as it skims along the planet's surface, with the

dull. Surprisingly, the graphics were only average, and the play action lacked appeal. However, the sound really brightened up the program - lots of sci-fi effects and space music. But all in all, *Buck Rogers* was a bit of a disappointment. It's also rather pricey when compared to Mastertronic games.

Tom Hussey



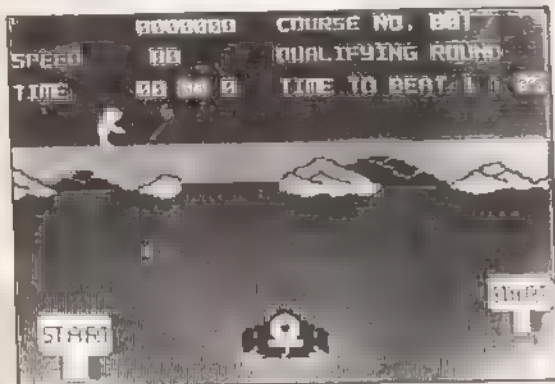
Steel nerves

Program *Aqua Racer* **Price** £6.99 **Micro** Commodore 84
Supplier Bubble Bus Software, 87 High Street, Tonbridge, Kent.

If you liked *Pole Position*, then you'll just love *Aqua Racer*. This game was created by Richard Clark, author of *Bumping Buggies*, and it possesses the fast-moving, highly addictive action of its predecessor.

past your first opponent on the inside. Watch the bend, don't go too fast. As the track straightens out you are swiftly approaching your next challenger. He takes the inside of the next bend, but you outmanoeuvre him and race past on the outside. No-one can stop you now.

Twenty different courses can be attempted, and they all have to be completed inside the time limit if you wish to reach the next level. A practice mode is also available in which you can try out the course without any



You climb into the sleek *Aqua Racer* and wait in anticipation for the starting gun to fire. The mighty engines of the powerboat roar as you accelerate into position. The race is on!

Initially, things are easy, but that soon changes. Slipping into high gear, you flash

opposition.

The graphics and sound are fine, but the thing that really "makes" this game is the excitement created by the actual race. A game for people with nerves of steel.

Tom Hussey



Breezy

Program *Mountain Palace Adventure* **Price** £7.95 **Micro** CPC 464 **Supplier** Ducksoft, The Old Piano Factory, 43 Gloucester Crescent, London NW1 7DY.

Following in a long line of traditional text-only adventures, this game certainly doesn't break new grounds in terms of plot. You wander around in strange fantasy/dungeon locations collecting treasure and solving puzzles that consist largely of trying to find the right verb-noun combination and nominating the correct object to use. Neither is it a display of technical brilliance; indeed there is a generous credit

given to Pete Gerrard's book, *Exploring Adventures on the CPC 464*.

Location descriptions are quite brief, puzzles are not too difficult, required logic is typically incongruous and disjointed, etc, etc. Yet, despite these apparent limitations, I really did like this adventure. There is an underlying bright and breezy enthusiasm that spills out in the various messages, hints and comments and makes you smile as you decide to play on for just a little bit longer. Before you realise it, you're the only one awake in the small hours, square eyed and addicted once more.

For people looking for an adventure that will be days, rather than months, in the playing, has a light atmosphere, lacks cynicism yet

Overheads

Program *Entrepreneur* **Price** £24.95 **Micro** CPC 464 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4FF.

Maggie Thatcher said once that what this country needs to set it straight is more small businesses, and for all the budding Arthur Daleys who want to take her up on the idea *Entrepreneur* is an essential purchase. Seriously, though, if you are one of those near legendary small businesses that we are often being told really do get by with 8 bit home micros, this package could possibly represent the best £25 you ever invest.

In common with all of the Brainpower series of pro-

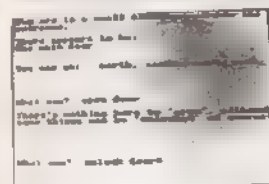
grams written by Triptych Software, you receive a teaching tape, an applications tape and a truly superb manual. Together they form an adult educational/utility package of unsurpassed quality. The bulk of the manual teaches the essential basics of balance sheets, accounts, business tax, cash flow and profit, etc - all the factors which underlie a successful business, but are too easily overlooked.

The applications tape requires you to enter a lot of data about the expected sales, costs, revenue, debts, production capacity, overheads, number of employees, that you expect your business to have. Once entered, the program shows the way your company will develop, highlighting problem areas where your cash, your profit, your raw materials or what-

Initial Data	
Company	biggs50 safes
Month to Start Trading	
Type of Business	
Analysis Period	12
Will you register for U.K.T.?	No
Continue	
Press ENTER to end input.	

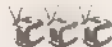
doesn't take itself too seriously, is fairly well thought out and error-trapped, then this could be the one for you.

However, I can't help feeling that on the Spectrum you could have picked this up for £4.95. I'm all for encouraging



small companies, but for the degree of skill and effort that went into this it shouldn't compare in price with marvels like *Sorcery*.

Tony Hendle



ever will run out and also, if you wish, how changes in your pricing costs, or sales figures will influence the health of your finances. If the situation looks sufficiently favourable you can have your projections printed out to present to your bank manager who, overwhelmed by your thoroughness, will cough up the necessary readyies without a quailm.

My only reservation about the package is that Triptych should be prepared to offer updates at regular intervals to take account of changes in VAT, etc. Not only a potential lifesaver for some people, this should also find a place in schools and colleges all over the country.

Tony Hendle



Liberate

Program Electro Price £3.95
Micro Spectrum 48k Supplier
 SD Software, 12 Fleming
 Field, Shotton Colliery, Coun-
 ty Durham DH6 2JF

5D are a new name in software and this entry into the budget market contains three programs at a lowish price.

Electro is a maze game, where your joystick has to tempt marauding nasties, ranging from telephones to BBC Bs, to their deaths, then liberate a Spectrum before time runs out.

While it contains much Ba-

sic, and so ■ not desperately fast, difficulty has been fairly well judged. The baddies behave reasonably 'intelligently' but there is too much duplication between screens to hold the attention for long. It could suit younger players though.

Death Reprieve and *Time Machine* are both 'adventures' (■ use the term lightly), and again they're in not very well protected Basic. To be honest, neither would look out of place in a book of listings. Vocabulary is limited, puzzles uninspiring, location descriptions brief and *Time Machine's* graphics are laughable.

Even the junior end of the market would probably be

pear from one ■ the 64 locations and then appear somewhere completely different.

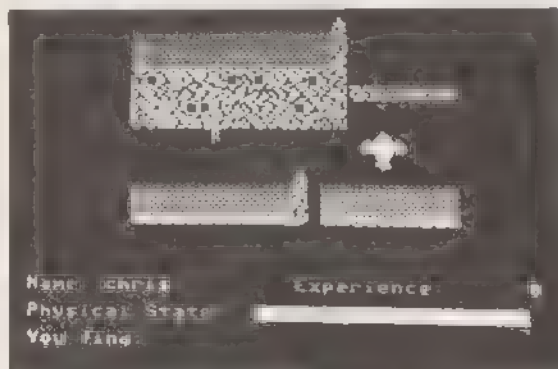
As is usual with this sort of game, you can collect various objects ■ help fulfil your quest. Crossbow, bolts, orbs, diamonds, lamps, etc. all come in useful. Unfortunately, unless you are adept at using ten toes on the keyboard whilst reserving both hands for joystick operation, you may well suffer a nervous breakdown.

Perhaps the high point of *Shades* is some very interesting graphics. I particularly liked the waterfall effect and the monster that resembled an electronic.

Program Shades Micro
Commodore ■ Price £9.95
Supplier Durell Software Ltd,
 Castle Lodge, Castle Green,
 Taunton TA1 4AB.

Sir James Barry once wrote that dying would be a great adventure. However, I doubt if his hero Peter Pan would have enjoyed playing *Shades*. There is certainly plenty of dying, but it usually gets in the way of the adventure.

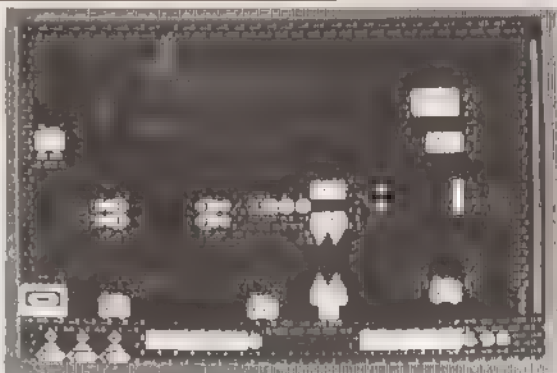
Billed as a fully animated 3D adventure, *Shades* was



written by Nigel Dewdney of *Scuba Dive* fame. The aim of the game is to fight your way through the barbaric land of Arulan, and eventually defeat the curse of evil. On the way, you can expect to do battle with various monsters, and suffer the curse of *Shades*. This causes people to disap-

Despite a good storyline, for me, this game just doesn't seem ■ come off. Maybe it's because it lacks that vital but indefinable quality - "playability". A good try, but not quite there.

Tom Hussey



bored by these.

In fact they're so dull you're effectively paying £3.95 for *Electro* and it just

isn't worth it.

John Minson



Data files

Program QL Sprite Kit Price
 £19.95 **Micro QL Supplier**
 Digital Precision, 91 Manor
 Road, Higham Hill, London.

Although the QL has good graphics potential, SuperBASIC does not easily allow the placing of shapes on the screen, only lines and arcs. You can use user-defined graphics, but they can only be 2-colour, and for proper graphics you need multi-coloured sprites. This package from Digital Precision gives you just that, easily used from Basic.

The cartridge comes packed with files, consisting of the actual machine code, three demo programs, and numerous data files for the sprites used in the demos. The first thing to do is load the machine-code extensions, and these take up a measly 1.5K, while adding four extra commands to Basic. The next thing I did was load up the demo program, which showed a bird flying across the screen, behind one wall and in front of another. While the demo will not give Ultimate sleepless nights, it does show the potential of the system.

When you want to get around to designing your own sprites, you'll find the Design program written badly in Basic. While the idea behind it is sound, the implementation ■ very sloppy; the cursor, which is supposed to move around a grid, actually

demolishes the grid as it goes! Sprites can be up ■ 24 x 32 pixels wide, and each pixel can be any colour. Obviously the bigger the sprite, the more memory it takes, and when you have designed ■ to your satisfaction you can save it to cartridge. After this the program simply stops, and to restart it you actually have to type Run - have these people not heard of *Goto's*?

There can be up to ■ sprites at once, and each sprite can have 16 different 'frames' - for example, a man jumping could have four frames - one for when he is on the ground, one for his way up, one at the top, and one for his descent. Sprites also have priorities, so that they can pass behind others, though this does not work perfectly with some colour combinations. There is also collision detection, off screen detection, and instant reversal for moving in opposite directions.

Writing your own programs is made easier by the 'skeleton' program supplied that contains the basic bits of code; then you add features as you need them. Apparently it's perfectly OK for you to use the routines in your own code for commercial programs, though as no machine-code entry points are given it's unlikely that it will be used commercially very much. The sprites produced are very good, so long as you don't mind battling with the crude editor.

Andrew Pennell



Spark of an idea

Graham Taylor talks to Sandy Mackenzie of Creative Sparks

Thorn EMI is a very very big company. In fact there aren't many companies bigger than Thorn EMI. Amidst the household appliances and Duran Duran can be found the Thorn EMI home computer software division, Creative Sparks. Creative Sparks is not big. In fact, in terms of full-time staff Creative Sparks is small - I mean what would you call a total of four employees?

Of course, it isn't quite that simple. For one thing the programs the company releases are all bought in from outside programmers - usually freelancers who have done work for the company in the past. Nevertheless, all the organisation, commissioning, development ideas, program evaluation and administration happens in a smallish office in central London.

Sandy Mackenzie, an amiable Scotsman, heads the operation and I asked him about Creative Sparks' relationship with Thorn. "Although we were funded by Thorn we operate pretty independently. We usually don't need to refer elsewhere for decisions and we operate our own budget now."

The Thorn involvement in computer software happened quite a while before Creative Sparks was set up last April, developing from interactive video projects. Sandy and another member of the team, Peter Chandler, had been with Thorn from that time. Sandy: "The home computer software happened by accident and grew out of interactive video - people tend to forget that before Creative Sparks, Thorn had already been successful with Atari products like *Submarine Commander* and *Jump Jet Pilot*."

The reason Thorn EMI computer software became Creative Sparks is simple: "Creative Sparks is a better name." The other big change about this time was the making redundant all the in-house programmers. Why was this? "Well, many of them are still employed by us on a freelance basis - we simply decided that using a system of freelancers, putting people together where necessary to form temporary teams and having a wide catchment area for different kinds of skills was a better way of doing it."

Creative Sparks is, with the occasional exception, fairly strict about the machines it supports, ie, the Commodore 64 and the Spectrum. "It really is a two machine contest at the moment, although the Amstrad CPC 464 is beginning to look very strong. Certainly those are the only machines I anticipate strongly supporting next Christmas and perhaps some time beyond that."

The most successful Creative Sparks

title to date has been *Danger Mouse in Double Trouble*, an arcade game based closely on the very successful children's cartoon series. It would seem like a classic example of powerful Thorn muscle buying up expensive TV rights, but it isn't quite like that. "Actually we have known Cosgrove Hall, which developed the TV cartoon, for a long time, and the game was created using its designs for character animation and the like. The whole look of the game was very much the result of its efforts."

Creative Sparks is shortly to join the budget software bandwagon with a new range, called Sparklers, expected to retail for £2.50. Sandy explained the move. "One thing that is becoming apparent is that the industry is polarising into two price bands and the provision of a budget price is basically a good thing - it means it's that much more difficult to put out average material at a high price."

with another major area of Thorn interest - records.

The idea of linking a group to a computer game is obviously a very potent one and Thorn EMI has a great many successful rock groups on its labels. Sandy however, was non-committal. "You can say that it is a pretty obvious thing to look into but there are problems with doing it properly."

"If we do a link-up with a group we would want them to be heavily involved with the project and it's very hard pinning down a big name group for the amount of time it would take - the other problem is that the definition rock groups are about music and it still isn't possible to do music really well on a home computer."

One thing Sandy is backing is a shift in the computer market away from games. "I think the market is changing - the growth rate is slowing."

"The old styles of game won't do on the new powered machines coming out this year. Obviously games will have to get even more sophisticated but really, I think the future will lie with personal development programs and greater use of network links."

"We have two new programs coming out roughly along these lines, a sophisticated *Painter* program for the Spectrum



Products for the new range will come from the 'almosts' - the programs sent to Creative Sparks that aren't quite good enough for the full price range. "We get dozens of submissions; some of them are obviously pretty poor, but there are quite a lot which are good, but perhaps not as original as we'd like. Still, we can put out some very playable games for a low price."

Licensing films, books and the like is obviously something that is uppermost in Creative Sparks' minds, since Thorn owns a fair number of likely titles already in its extensive film division, but I wondered if there might ever be a tie-up

and a music program for the musically illiterate should be around by autumn. In a sense 'self improvement' packages are very much what's already happening in America."

I wondered what the Thorn EMI higher command make of Creative Sparks. "I think some of them don't realise we're part of the same company. Working here is not like working for the usual large international concern - we all have a definite commitment to what we're doing and we have to be very flexible in our outlook. It's a weird industry when you come to think about it."

It certainly is.

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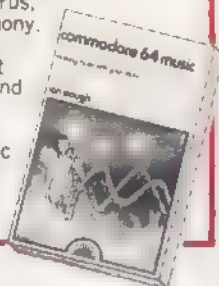
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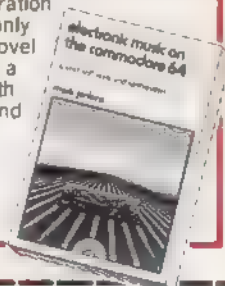
Here's how to program and play your 64 like a fine instrument

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Inside every Commodore C64 sits SID, the unique and very powerful sound Interface Device. Understand and make good use of SID and you've got a wonderfully musical micro. Ian Waugh's book lets you use SID to the fullest, with programs to produce chorus, echo, polyphony, even sound effects. Start playing around with your 64, and let it make music for you. The book's only £6.95, too.



Concentrating on the Commodore C64 as a controller or peripheral to other music-making goodies, Mark Jenkins — technical editor of Melody Maker — has produced a superb new book that lets you into all the secrets of the 64's very powerful sound generation system. At only £6.95, its novel approach is a must for both musicians and micro enthusiasts.



There's no doubt that everyone's talking about Logo — and here's your chance as a Commodore 64 owner to discover what all the fuss is about. Logo helps you liberate the real potential of your 64, creating great sounds, super graphics and the most effective sprites you've ever seen. Once you've used Logo, there's no going back to Basic! Boris Allen's book will cost you just £6.95



Brian Lloyd has written the definitive book for everyone starting to use the superb new Commodore C16 and Plus4 micros. You'll soon be able to get programming in BASIC, and at the end of a great read, you'll be well on your way to producing hi-res graphics and doing some very neat disk file handling, for instance, all without getting defeated by needless technicalities. The Commodore C16/Plus4 Companion is a must for every owner and user, and it's only £5.95.



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Hardware Review

More info

Hardware Simplex 256K RAM Micro QL Price £198 Supplier Simplex Data Limited, Free Post, 432 Greenford Road, Greenford, Middlesex UB6 8SG.

Many of you may wonder why the QL needs any extra Ram. The answer is that there are two main advantages; the first is that Basic can run 20% faster and machine code 55% faster when stored in this Ram because the on-board Ram is slowed down by the screen hardware. The other advantage is that many of the large programs like *Quill* which normally have to load information from tape, can now store this information in the extra memory.

The Simplex board is a very compact unit and when plugged into the QL is only just visible. The board is made up of the new 256K Rams chips and space has also been left for another 256K, so you can take the board up to a full 512K. The cost of this upgrade has been set at £198; you can, of course, buy a 512K board, but this will cost you £398 or there's a 64K board for just £99.90.

Apart from a number of small changes to the board due to Sinclair changing the specification of the QL's expansion port design a number of times, it is very well-

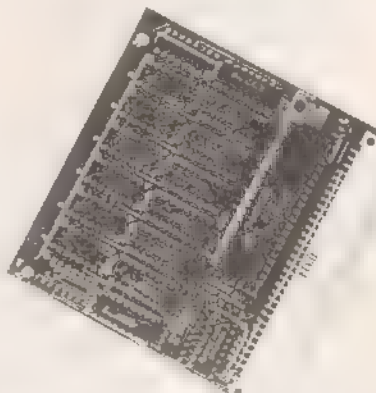
built. The only problem which could appear when using the 512K version of this board is that the power supply may over-heat.

The extra Ram is noticeable as soon as you reset the machine; the initialisation sequence now takes longer as QDOS does its memory checks. The next time you are likely to notice it is when you load a program like *Quill* (version 1.0).

Until now *Quill* has relied heavily on the microdrives for holding data, but with the extra memory it is able to load in the overlays and still have a vast amount of memory free.

■ you own the new versions of the Psion programs the main improvement is in the amount of information you can store.

At the moment I can see only one problem with buying a Ram board. This is the fact that you end up with a 384K computer with 100K storage system and the idea of having a program spread



the idea of having a program spread across a number of microdrive cartridges does not appeal somehow. Of course you can always buy a disc drive system, but only one board can be plugged into the QL at a time until someone produces a motherboard.

Overall it's a nice product and if you want more memory for your QL, I would recommend a board like this as you can then upgrade to 512K when the price of the Ram chips drops.

Roger Thomas

Computers In Control

Fancy building the Popular Computing Weekly buggy? Here is another chance to order the kit

Popular Computing Weekly has arranged with Greenweld of Southampton to produce a kit consisting of everything you need to produce the buggy.

There are slight differences between the kits required for each micro so make sure you indicate clearly which micro

you own. Prices are as follows:

BBC, Amstrad£12.95
Commodore 64.....£11.95
Spectrum, ZX81£13.95

Prices include postage and packing but not batteries.

Order form

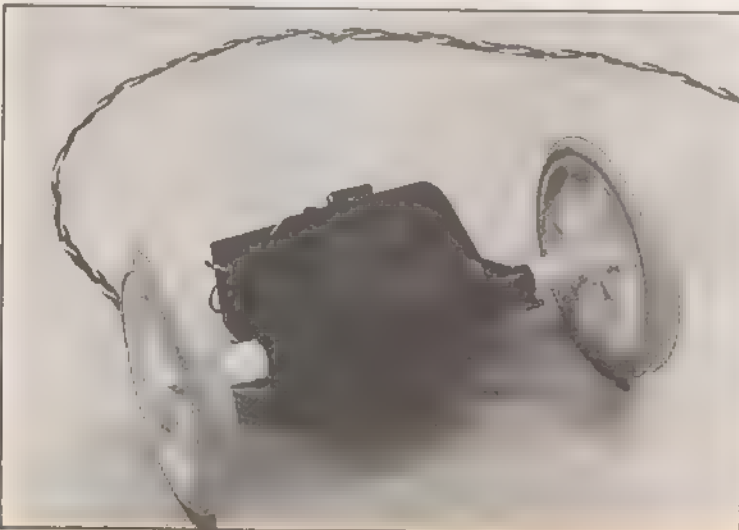
Complete the form with your name and address, together with the version of the kit you want and the total value of your order and send in to Popular Buggy Offer, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

NOTE: Cheques or postal orders should be made payable to Greenweld Ltd. Please allow 28 days for delivery. Offer closes April 30.

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Kingdoms

Fancy yourself as a Dictator? Then try this strategy game for megalomaniacs for the CBM64 by **James Marsden**

The object of the game is to survive 20 years as President of a small republic whose economy runs on sacks of corn. If you survive the term in office you are given points which, if high enough, allow you to enter your name in the 'Greatest Presidents ever' table.

To control your republic you must decide how much corn to feed the people with, plant in the ground to grow, buy land, or sell land to obtain more corn. ■ you give more food than necessary you will gain subjects, conversely too little food and people will starve.

If you starve too many people in one year there will be an assassination attempt. There are random elements in the game such as guerilla attacks or help from international aid so no game is ever the same.

When playing the game you can press 'F1' to quit or 'F7' for a recap on rules and instructions. If you find the game to hard or too easy you can change the values of the variables in lines 170 and 180. The main variables are:

Sa - sacks of corn to start

Su

- subjects to start

Ac

- acres to start

Feed

- sacks needed to feed one person

Plant

- sacks needed to fill one acre

Pplant

- sacks one person can plant

The listing has control characters substituted by words in square brackets. This makes the listing easier to read. Graphic characters are shown by a [G >] or a [G <]. The < means cbm shift and the = normal shift.



[illegible]

Clocking on

Stand by your interrupts and try this multi-tasking clock for the Spectrum 48K by **Mark Snell** from *Technique Software*

The following routine uses the Spectrum's interrupt *Mode 2* to produce a continuous digital time display in the top right hand corner of the screen.

Listing 1 is the Basic program to load the machine code into memory, then to set the clock to the correct time. Type this in carefully, then *Save* it before *Running*. When prompted, enter the time, then sit back and watch what

happens!

Should the program not work properly, reset the computer, *Load* the program again and carefully check the *Data* statements. The sum of all the data items should be 20958.

To switch the routine on, type *Randomize Usr 65110*, and *Randomize Usr 65120* to switch it off. The following system variables should be set every time the routine is switched on:

Frame (23674) contains the Hours
Frame (23673) contains the Minutes
Frame (23672) contains the Fiftieths of seconds

Frame (23681) contains the Seconds

Bear in mind that the Spectrum's *Load*, *Save* and *Beep* commands all disable the interrupts, so these will cause the clock to lose time. This might be compensated for with just a few lines of Basic:

```
10 BEEP 2,0
20 LET P=PEEK(23681):IF P>56 THEN
GOTO 20
```

```
30 POKE 23681,P+2
```

To remove Basic listing, *New* the program then type *Randomize Usr 65110*.

```
10 REM *****
20 REM * CLOCK DISPLAY *
30 REM *   by M.Snell *
40 REM *****
50 REM
60 REM ON- RANDOMIZE USR 65110
70 REM OFF-RANDOMIZE USR 65120
80 CLEAR 65109: RESTORE : LET AD=65110
90 READ A: IF A=999 THEN INPUT "HOURS? ";H: INPUT "MINUTE
S? ";M: INPUT "SECONDS? ";S: POKE 23674,H: POKE 23673,M: POK
23681,S: POKE 23672,0: RANDOMIZE USR 65110: STOP
100 POKE AD,A: LET AD=AD+1: GO TO 90
110 REM
120 REM SWITCH INTERRUPT ON/OFF
130 DATA 62,9,237,71,237,94,201,0,0,0,62,62,237,71,237,86,2
01,0,0
140 REM
150 REM CHECK 'FRAMES' & CLEAR LINE
160 DATA 245,197,213,229,33,120,92,126,254,50,194,210,254,5
4,0,33,23,64,14,8,62,0,6,8,229,119,35,16,252,225,36,13,32,24
4
170 REM
180 REM
190 REM GET HRS, MINS, SEC
200 DATA 33,129,92,52,126,254,60,32,22,54,0,33,121,92,52,12
6,254,60,32,11,54,0,35,52,126,254,13,32,2,54,1
210 REM
220 REM PRINT HRS, MINS, SEC
230 DATA 17,0,0,58,122,92,38,0,111,205,249,254,62,10,205,21
7,254,58,121,92,38,0,111,205,249,254,62,10,205,217,254,58,12
9,92,38,0,111,205,249,254,225,209,193,241,195,56,0
240 REM
250 REM SUBROUTINES
260 DATA 19,213,229,33,23,64,25,229,33,128,61,22,0,167,23,2
3,23,95,25,235,225,6,7,26,119,36,19,16,250,225,209,201
270 DATA 1,246,255,205,4,255,125,205,217,254,201,175,9,60,5
6,252,237,66,61,24,203,999
```


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Merged together

An invaluable utility for your QL – mail merge written by Don McAllister

Although it is possible to print out addresses etc from Archive files, using the Archive programming language, it is extremely difficult to construct documents for the purpose of, say, sending standard letters to all of the addresses on a customer database. This utility program enables the user to use the facilities of Quill to construct a document and then, once completed, merge the document together with an Archive file to produce such things as mail shots, reminders, newsletters, invitations, etc, easily and quickly.

The program works by reading individual lines of text from the Quill document file and then printing each one in turn. When the first line to be replaced is reached (normally the first line of the address) the program then reads a line of text from the Archive file and prints it in the original's place. In its present

form, the program is designed for use with a database of addresses but, because of the use of Superbasic procedures, it would be possible to modify for any other application.

Firstly, you must prepare your Quill document. The document to be used is constructed in the normal manner but bearing in mind the following points:

1 The address to be replaced should be entered, in full, at the position you wish it to appear on each document (normally on the left hand side).

2 As the program deletes each complete replacement address line from the original document, no other information should be present on the same lines as the replacement address (such as the date = reference numbers).

Once the document is finished a careful note must be made of the following parameters, which are required by the

program. The *Upper Margin Length* – as determined by the *Design* command of Quill. The *line no of Address Start* – as given by *Status* area of Quill. *No of Lines in Address* – this figure should be the same as the number of lines in each address record in the Archive file. The *Length of Gap before Name* – the number of Quill lines in the gap between the last line of the replacement address and the position of the salutation name to be replaced (Dear Mr X ! ! !). Finally the *Width of Margin* – the position of the first character of the address as given by the *Ruler* area of Quill.

Now create your Print document. To facilitate using the document in this program a copy should be printed to a file using the *Print* command of Quill. This will give the file the file name *extension_qls*, and this is the source file for the program. The document should also be saved as an ordinary Quill doc, using the *Save* command, for future amendments.

Next week, how to prepare your Archive files, and the remainder of the SuperBasic listing.

```

100 REMark *****
110 REMark ***** ADDRESS MERGE *****
120 REMark ***** D.McAllister 1984 *****
130 REMark *****
140 MODE 4
150 start
160 :
170 DEFine PROCedure screen_display
180 PAPER 4
190 CLS
200 BLOCK 300,87,70,10,0
210 BLOCK 300,87,60,5,2
220 BLOCK 300,54,70,103,0
230 BLOCK 300,54,60,99,2
240 BLOCK 250,27,97,172,0
250 BLOCK 250,27,92,167,4
260 INK 0:LINE 36,3 TO 34,3 TO 34,16 TO 127,
    16 TO 127,3 TO 36,3
270 END DEFine
280 :
290 DEFine PROCedure start
300 screen_display
310 INK 7:PAPER 2:CSIZE 3,1
320 AT 1,8:PRINT "MAIL MERGE"
330 CSIZE 2,0: AT 7,8:PRINT "D.McALLISTER 1984"
340 PAPER 4:INK 0
350 CSIZE 1,0:AT 17,16:PRINT "PRESS ANY KEY TO
    START":PAUSE
360 file
370 END DEFine
380 :
390 DEFine PROCedure file
400 screen_display
410 CSIZE 0,0
420 INK 7:PAPER 2: AT 1,22:PRINT "QUILL DOCUMENT PARAMETERS"
430 AT 10,23:PRINT "ARCHIVE FILE PARAMETERS"
440 INK 0: AT 2,16:INPUT "Which drive is Quill document on ?:- " ;d$
450 AT 3,16:INPUT "Quill document name ?:- " ;name$
460 AT 4,16:INPUT "Upper margin length ?:- " ;m
470 AT 5,16:INPUT "Quill line No. of address start ?:- " ;l:LET top=
    (l+m)-1
480 AT 6,16:INPUT "Number of lines in address ?:- " ;lgap
490 AT 7,16:INPUT "Length of gap before name ?:- " ;lrest
500 AT 8,16:INPUT "Width of margin ?:- " ;lmar
510 INK 0:AT 11,16:INPUT "Which drive is Archive file in ?:- " ;iet
520 AT 12,16:INPUT "Archive file name ?:- " ;file$
530 AT 13,16:INPUT "Number of addresses in file ?:- " ;ibase
540 PAPER 4:INK 0:AT 17,20: PRINT "To initiate print run - press f1"
550 AT 18,18:PRINT "To check layout - press any other key"
560 output = CODE(INKKEY%(-1))
570 IF output = 232 THEN
580 channel = 4
590 construct
600 address
610 ELSE
620 check_run
630 END IF
640 END DEFine
650 :
660 DEFine PROCedure construct
670 OPEN_IN #3,"adv'test"_"&file$
680 OPEN #4,ser1
690 tlf_list
700 FOR document= 1 TO dbase
710 IF channel=4 THEN report
720 top_print
730 FOR record= 1 TO lgap
740 tlf_list

```



```

750      IF channel=4 THEN report_update
760      PRINT @(channel);FILL@(" ",ear);rec$
770      END FOR record
780      rest_print
790      tlf_list
800      PRINT @(channel);FILL@(" ",ear);"Dear "rec$
810      IF chk = 1 THEN
820          layout
830      ELSE
840          bulk_print
850      END IF
860      END FOR document
870      CLOSE #4
880      CLOSE #3
890      CLOSE #5
900      IF channel=4 THEN address
910      END DEFINE
920 :
930      DEFINE PROCEDURE top_print
940      OPEN IN #5,"adv"ld$,"&naz$
950      FOR record = 1 TO top+1
960          tlf_doc
970          prt_line
980      END FOR record
990      END DEFINE
1000 :
1010      DEFINE PROCEDURE rest_print
1020      FOR record = 1 TO gap
1030          tlf_doc
1040      END FOR record
1050      FOR record = 1 TO rest
1060          tlf_doc
1070          prt_line
1080      END FOR record
1090      tlf_doc
1100      END DEFINE
1110 :
1120      DEFINE PROCEDURE bulk_print
1130      REPEAT loop
1140          IF EOF(#5) THEN EXIT loop
1150          tlf_doc
1160          prt_line
1170      END REPEAT loop
1180      END DEFINE
1190 :
1200      DEFINE PROCEDURE check_run
1210      PAPER 0:CLS
1220      channel=2
1230      hold_variable = dbase
1240      dbase = 1
1250      chk = 1
1260      construct
1270      chk = 0
1280      PAPER 2:INK 7

```



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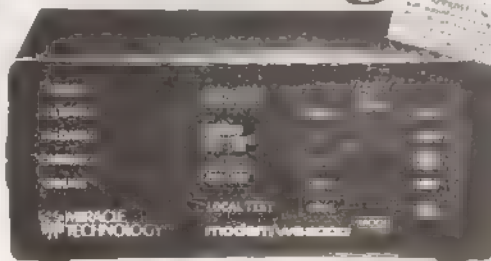
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PCW1

Future perfect?

The mysteries of the Tarot explained on the BBC B
by **Robert Watson**

This program is designed to simulate a popular type of read of the Tarot deck used by gypsies and computer programmers for centuries.

The 22 cards of the Major Arcana are complicated designs, but with basic ideas behind them, so I have redesigned the deck using simpler symbols for each, eg. The Emperor is symbolised by

a Sceptre.

The separate cards are drawn by 22 different subroutines of varying length and complexity, the line number for each routine being held in a string Array, along with the name for the card.

Run the program and your BBC will display the titles for the 22 cards of the Major Arcana, along with their numbers

(0-21). Press a key when you have read these. The Tarot is explained so follow the prompts from here.

The 10 cards of this particular deal will then be spread on the screen. In a couple of seconds, these will then clear, and the 10 pictorial cards will be displayed singly. After this an analysis of the cards will be given.

At this point either press **Escape** to read the above instructions, or press any key for another deal. The 'F' signs in the listing should be entered as '#'.
 #

You are advised not to take any predictions too seriously!

```

10MODEY:=ONEHROXRUM
20VUDU23:=0202:0:0:0:0:0:F811
30INTS(231,M(211),CARD1(10))
40PROCset
50PDCw:=PDCIns:REPEAT:MODE5:VUDU23:=0202:0:0:0:0
60PDCDEs(1:PDCKey:=VUDU:COLDUH(29):CLS:=PROCcard:=PDC
Creat:=MODE7:PROCInt
70UNT1:0
80:
90DEFVPROCcard
100V:24,400:300)B40:900:10,0,135,1h
110VUDU24,41h:31h:87h:88h:10,0,128,1h
120VUDU24,43h:33h:88h:8h:10,0,135,1h
130VUDU29,43h:33h:1:MOVE0,0
140ENDPROC
150:
160DEFVPROCkey:=F821,0
170PCEP(UNT1:LINEV(1900):SCOL0,831:CL6:VUDU29
180ENDPROC
190:
200DEFVPROCset
210RESTORE240
220FORI:=0TO21:READI(1):NEXT
230ENDPROC
240DATA"THE FOOL,570"
250DATA"THE JUGGLER,780"
260DATA"HIGH PRIESTESS,930"
270DATA"THE EMPRESS,1030"
280DATA"THE EMPEROR,1150"
290DATA"THE POPE,1430"
300:
310DATA"THE LOVERS,1290"
320DATA"THE CHARIOT,1550"
330DATA"JUSTICE,1700"
340DATA"THE HERMIT,1820"
350DATA"WHEEL OF FORTUNE,2040"
360DATA"STRENGTH,2170"
370DATA"HANGED MAN,2280"
380DATA"DEATH,2370"
390DATA"TEMPERANCE,2520"
400DATA"THE DEVIL,2630"
410DATA"LIGHTNING TOWER,2740"
420DATA"THE STAR,2870"
430DATA"THE MOON,2930"
440DATA"THE SUN,3010"
450DATA"JUDGEMENT,3080"
460DATA"THE WORLD,3170"
470:
480DEFVPROCcsc(12,Y1,R1X,RV1)
490MOVE12,Y1
500FORw:=0TO24:1+0,1STEP,1
510X:=SUM(AR11+12:=r:=COS(WRTY2+Y1
520MOVE12,Y2:=PLD(185,I,Y1:WEET
530ENDPROC
540:
550DEFVPROC(1:102,YX,111,Y1X,12X,Y2X)
560MOVE102,Y1:MOVE11X,Y1X:PLD(185,12X,Y2:=ENDPROC
570REM FOOL
580VUDU1,2,410)
590GCLO,0
600RDC(12,0,0,0,138,370,0)
610GCLO,1

```

670PRODCtr: (40, 60, 80, 200, 80, 120)
 680PRODCtr: (60, 200, 120, 500, 100, 100)
 690PRODCtr: (100, 60, 120, 300, 200, 100)
 696GCDLQ, 2
 696PRODCtr: (200, 180, 180, 160, 240, 260)
 697PRODCtr: (200, 100, 280, 60, 240, 260)
 698PRODCtr: (240, 260, 280, 300, 280, 60)
 699PRODCtr: (280, 180, 280, 300, 320, 60)
 700GCDLQ, 1
 710PRODCtr: (100, 60, 280, 60, 280, 100)
 720GCDLQ, 2
 730PRODCtr: (40, 60, 20, 20)
 740GCDLQ, 1
 750PRODCtr: (340, 60, 20, 20)
 760PRODCtr
 770KETURN
 780PEN MAGI
 796GCDLQ, 1
 800PRODCtr: (0, 200, 6, 250, 378, 250)
 810PRODCtr: (0, 200, 378, 200, 378, 250)
 820PRODCtr: (50, 0, 100, 0, 50, 200)
 830PRODCtr: (150, 200, 100, 200, 100, 0)
 840PRODCtr: (290, 0, 340, 0, 270, 200)
 850PRODCtr: (340, 0, 340, 200, 290, 200)
 860GCDLQ, 2
 870GDRIZ=50I0350STEP40
 880PRODCtr: (12, 300, 50, 50)
 890METI
 900PRODCtr: (190, 430, 50, 50)
 910PRODCtr
 920KETURN
 930KEN PRIESTESS
 940VNUJ9, 1, 5:0;
 950GCDLQ, 1
 960PRODCtr: (190, 0, 140, 300)
 970GCDLQ, 2
 980GDRIZ=20I0360STEP40
 990PRODCtr: (12, 0, 340, 0, 1340, 40)
 1000METI
 1010PRODCtr
 1020KETURN
 1030KEN EMPRESS
 1040VNUJ9, 1, 2:0;
 1050GCDLQ, 1
 1060PRODCtr: (140, 100, 240, 100, 170, 300)
 1070PRODCtr: (150, 100, 140, 100, 50, 700)
 1080PRODCtr: (240, 100, 340, 100, 350, 290)
 1090GCDLQ, 2
 1100PRODCtr: (180, 300, 20, 20)
 1110PRODCtr: (150, 290, 20, 20)
 1120PRODCtr: (330, 290, 20, 20)
 1130PRODCtr
 1140KETURN
 1150KEN EMPEROR
 1160VNUJ9, 1, 5:0;
 1170GCDLQ, 2
 1180PRODCtr: (190, 50, 210, 50, 190, 400)
 1190PRODCtr: (210, 50, 210, 400, 190, 400)
 1200PRODCtr: (200, 374, 30, 60)
 1210GCDLQ, 1
 1220PRODCtr: (200, 454, 36, 30)
 1230GCDLQ, 0

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1740FCR02=340TBGSTEP-10
1250MOVE190,0T:BRAM210,BT
1260RET
1270PROCkey
1280RETURN
1290PEM LOVERS
1300GCOL,1
1310PROCirc(100,100,80,80)
1320PROCirc(1280,100,80,80)
1330MOVE100,100:DRAW100,300:MOVE100,300:
BRAM150,200
1340MOVE280,100:BRAM280,300:MOVE240,250:BRAM320,250
1350GCOL,3
1360PROCirc(100,160,70,70)
1370PROCirc(1280,160,70,70)
1380GCOL,2
1390PROCtri(10,80,10,120,360,120)
1400PROCtri(1360,120,360,80,10,80)
1410PROCkey
1420RETURN
1430REM POPE
1440VBURP,1,40:
1450GCOL,1
1460PROCtri(170,50,210,50,170,450)
1470PROCtri(210,50,210,450,170,450)
1480PROCtri(130,300,30,340,350,340)
1490PROCtri(1350,340,350,300,30,300)
1500PROCirc(190,430,40,70)
1510GCOL,3
1520PROCirc(190,430,20,50)
1530PROCkey
1540RETURN
1550REM CHARIOT
1560GCOL,1
1570PROCtri(0,0,0,100,380,100)
1580PROCtri(1300,100,380,0,0,0)
1590GCOL,2
1600PROCtri(100,150,100,250,300,200)
1610PROCtri(100,150,300,200,300,150)
1620GCOL,0
1630PROCirc(200,350,60,60)
1640GCOL,1
1650PROCirc(200,350,40,40)
1660GCOL,0
1670MOVE,170:BRAM120,170
1680PROCkey
1690RETURN
1700REM JUSTICE
1710GCOL,2
1720PROCirc(150,250,70,30)
1730PROCirc(330,250,70,30)
1740PROCcirc(190,400,60,60)
1750GCOL,3
1760PROCtri(0,250,0,300,380,250)
1770PROCtri(1380,250,380,300,0,300)
1780GCOL,2
1790MOVE50,250:BRAM50,400:BRAM330,400:BRAM330,250
1800PROCkey
1810RETURN
1820REM MERMITE
1830GCOL,2
1840PROCtri(100,100,100,600,790,600)

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1850PROCtri(100,100,290,100,290,400)
1860PROCcsc(200,440,40,40)
1870GCOL,3
1880PROCcsc(200,440,25,25)
1890PROCtri(120,120,120,380,270,380)
1900PROCtri(120,120,270,120,270,380)
1910GCOL,0
1920PROCtri(190,120,190,310,210,310)
1930PROCtri(190,120,210,120,210,310)
1940GCOL,2
1950PROCcsc(200,330,20,40)
1960GCOL,1
1970PROCcsc(200,520,10,20)
1980GCOL,2
1990FORI=310TO120STEP-30
2000MOVEI,0,D1:DRAM270,D1
2010NEXT
2020PROCkey
2030RETURN
2040REM WHEEL
2050VUI19,1,30)
2060GCOL,1
2070PROCcsc(190,260,180,180)
2080GCOL,3
2090PROCcsc(190,260,140,140)
2100GCOL,2
2110MOVEI,90,260
2120FORI=0TO20PI STEP.303
2130Y=91MM+140+190:Y=CSH+140+260
2140MOVEI,0,260:DRAM1,Y:NEIT
2150PROCkey
2160RETURN
2170REM STRENGTH
2180GCOL,1
2190PROCtri(0,0,0,300,380,340)
2200PROCtri(10,0,300,0,380,300)
2210GCOL,2
2220FORI=300TO0STEP-50
2230MOVEI,D1:DRAM380,D1:NEIT
2240FORI=0TO300STEP100
2250MOVEI,300:DRAM1,250:NEIT
2260PROCkey
2270RETURN
2280REM HANGED RAM
2290VUI19,1,210)
2300GCOL,1
2310PROCcsc(190,200,300,80)
2320GCOL,2
2330MOVEI,0,200:DRAM190,400
2340MOVEI,340:DRAM230,340
2350PROCkey
2360RETURN
2370REM DEATH
2380VUI19,1,610)
2390GCOL,2
2400PROCcsc(190,480,60,100)
2410PROCcsc(190,170,70,100)
2420PROCcsc(190,200,30,90)
2430PROCcsc(170,200,30,90)
2440GCOL,0
2450PROCcsc(190,420,40,40)
2460PROCcsc(190,200,20,70)
2470MOVEI,150:DRAM300,340
2480GCOL,1
2490PROCtri(190,340,260,300,240,160)
2500PROCkey
2510RETURN
2520REM TEMPERANCE
2530VUI19,1,810)
2540GCOL,2
2550PROCtri(100,0,300,0,290,140)
2560PROCcsc(200,100,90,100)
2570PROCcsc(200,150,60,120)
2580PROCcsc(200,300,140,80)
2590GCOL,1
2600PROCcsc(290,290,100,60)
2610PROCkey
2620RETURN
2630REM DEVIL
2640GCOL,1
2650PROCcsc(200,200,200,200)
2660GCOL,3
2670PROCcsc(200,240,160,170)
2680GCOL,2
2690FORI=150TO0STEP10
2700MOVEI,0,D1:DRAM200,D1:NEIT
2710NEXT
2720PROCkey
2730RETURN
2740REM LIGHTNING
2750GCOL,1
2760FORI=300TO0STEP-5
2770MOVEI,0,D1:DRAM200,D1:NEIT
2780GCOL,0
2790PROCcsc(200,200,30,30)
2800FORI=200TO0STEP-4
2810MOVEI,170,D1:DRAM250,D1:NEIT
2820GCOL,2
2830PROCtri(280,530,350,530,200,380)
2840PROCtri(200,400,260,400,60,140)
2850PROCkey
2860RETURN
2870REM STAR
2880GCOL,2
2890PROCtri(100,100,290,100,200,300)
2900PROCtri(100,200,290,200,300,0)
2910PROCkey
2920RETURN
2930REM AGON
2940GCOL,120:CLB
2950GCOL,2
2960PROCcsc(200,300,200,200)
2970GCOL,0
2980PROCcsc(1240,330,150,170)
2990PROCkey
3000RETURN
3010REM SUN
3020VUI19,1,410)
3030GCOL,129:CLB
3040GCOL,2
3050PROCcsc(190,300,190,190)
3060PROCkey
3070RETURN
3080REM JUDGMENT
3090FORI=0TO300STEP70
3100GCOL,2
3110PROCtri(AZ,0,AZ+90,0,AZ+40,300)
3120GCOL,1
3130PROCtri(AZ,0,AZ+20,0,AZ+10,200)
3140NEXT
3150PROCkey
3160RETURN
3170REM WORLD
3180VUI19,1,410)
3190VUI19,2,210)
3200GCOL,1
3210PROCcsc(190,200,180,180)
3220GCOL,3
3230FORI=180TO20STEP-30
3240PROCcsc(190,200,91,91)
3250NEXT
3260PROCkey
3270RETURN
3280:
3290DEFPROCa
3300RESTORE3340
3310FORI=0TO255:READP(I):NEXT
3320ENDPROC
3330:
3340DATAFULLY
3350DATAWILL POWER
3360DATAWISDOM
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4200PRINT " 4. PAST FOUNDATION."
4210PRINT " 5. PAST EVENTS."
4220PRINT " 6. FUTURE INFLUENCE."
4230PRINT " 7. THE QUESTIONER."
4240PRINT " 8. ENVIRONMENT."
4250PRINT " 9. INNER EMOTION."
4260PRINT "10. FINAL RESULT."
4270PRINT "PRESS ANY KEY FOR EXAMPLE DEAL";GZ:GET:CL
S
4280PRINT "EXAMPLE DEAL B READ"
4290PRINT " "
4300PRINT "NO. CARD"TAB(12)"MEANING"TAB(24)"RELATES T
O"
4310PRINT " "
4320PRINT "01. POPE"TAB(12)"MERCY"TAB(24)"PRESENT"
4330PRINT "02. DEATH"TAB(12)"CHANGE"TAB(24)"OBSTACLES
"
4340PRINT "03. DEVIL"TAB(12)"VIOLENCE"TAB(24)"SPECIFI
B GOAL"
4350PRINT "04. STAR"TAB(12)"HOPE"TAB(24)"PAST"
4360PRINT "05. MOON"TAB(12)"DANGER"TAB(24)"EVENTS PAS
T"
4370PRINT "06. WORLD"TAB(12)"SUCCESS"TAB(24)"FUTURE"
4380PRINT "07. HOUSE"TAB(12)"CALAMITY"TAB(24)"QUESTIO
NER"
4390PRINT "08. FOOL"TAB(12)"FOLLY"TAB(24)"ENVIRONMENT
"
4410PRINT "PRESS ANY KEY B DEAL";GZ:GET:CLS:ENDPRO
C
4400PRINT "09. LOVERS"TAB(12)"LOVE"TAB(24)"FINAL RESU
LT"

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4420DEFPROC read
4430FOR CX=1 TO 10
4440VDU4
4450BX=cardX(CX)
4460PRINT TAB(0,0)LEFT$(TAB(BX),FNline(BX));"
  "TAB(0,1)" " "FN(BX)" "
4470LZ=LEN(TAB(BX));RX=FNline(BX)
4480line%=VAL(RIGHT$(TAB(BX),LZ-RX))
4490BOSUB lineZ
4500NEXT
4510ENDPROC
4520DEFPROC int:RESTORE 4590
4530PRINT "YOUR CARDS WERE"
4540PRINT " "
4550FOR CX=1 TO 10:LZ=FNline(cardX(CX));READ CN0
4560PRINT LEFT$(TAB(CX),LZ)TAB(17)CN0;"MEANING
  "FN(cardX(CX))
4570NEXT:PRINT "PRESS ESCAPE OR KEY"
4580GZ:GET:CLS:ENDPROC
4590DATA "PRESENT INFLUENCE"
4600DATA "IMMEDIATE OBSTACLES"
4610DATA "SPECIFIC GOAL"
4620DATA "PAST FOUNDATION"
4630DATA "PAST EVENTS"
4640DATA "FUTURE INFLUENCE"
4650DATA "QUESTIONER"
4660DATA "ENVIRONMENT"
4670DATA "INNER EMOTIONS"
4680DATA "FINAL RESULT"

```

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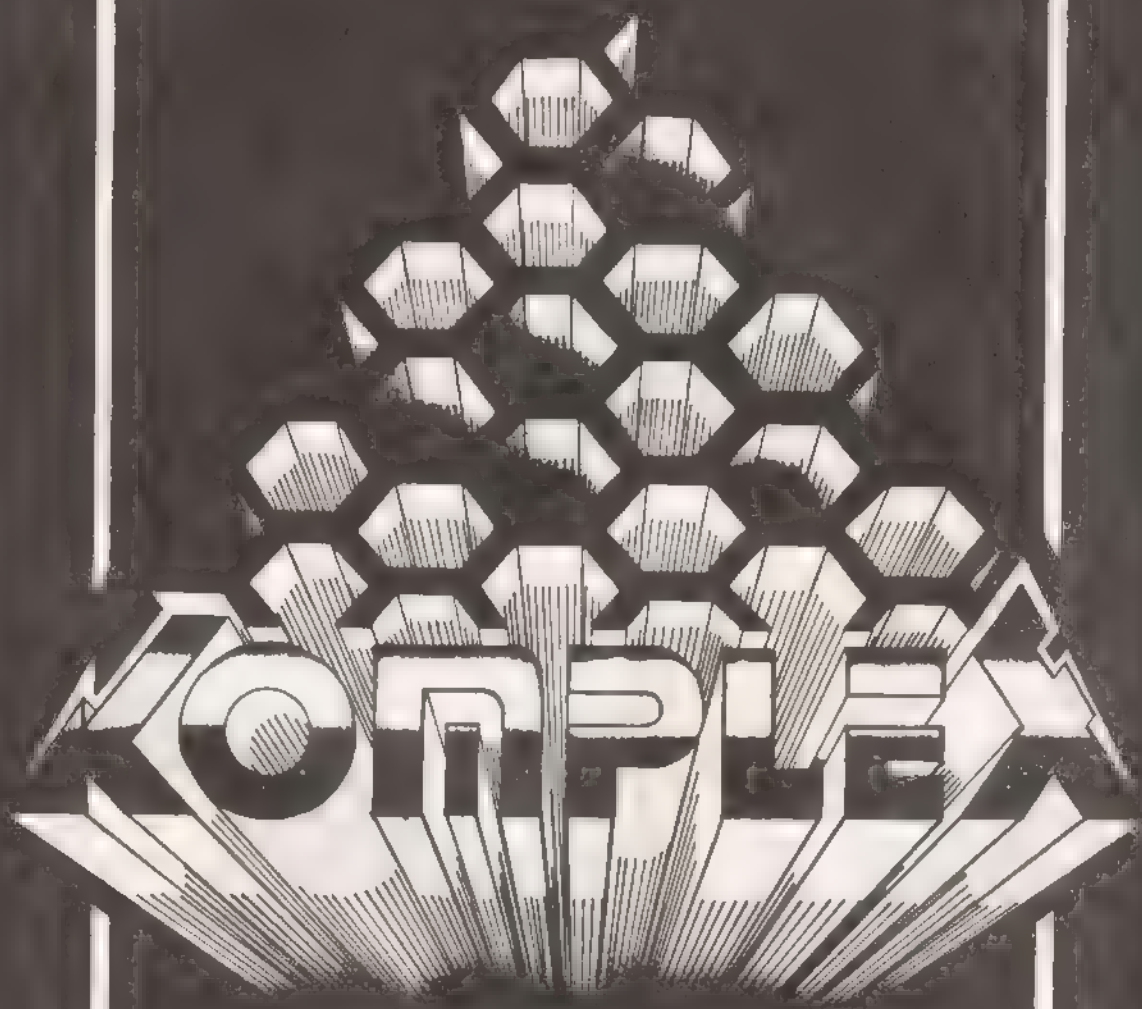
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LEGEND

New wheels, John?

Get the Popular Buggy moving on the Amstrad CPC 464 – this week John Billingsly shows you how

All those Amstrad owners that have been enviously glancing at their friends' micros can stop worrying, because after this week, you too can control the Popular Buggy using the CPC464.

The circuit board utilising the ULN 2803 chip, and the buggy itself are both the same as for the Commodore or BBC versions (see Vol 4 No 11), only this time, we use the printer port of the Amstrad for the source of our commands.

For a circuit this simple, we use an unclad circuit board. The pins of the chip fit through the holes, and are bent outwards on the underside. To make a connection, a wire is pushed through the adjacent hole and bent over on top of the pin where it is soldered in place. Take care when soldering. Clean the iron before every joint – a quick wipe on a wet tissue will do the trick – and melt fresh solder on to the joint as you solder it. 'Tin' each wire and component before making the joint by melting fresh solder against the iron in contact with that component alone. The result should be a bright film of tin which wets each surface to be connected. Now bend the leads so that they press together, and a swift touch with the iron will result in a reliable joint. Mount the Darlington chip on

the board.

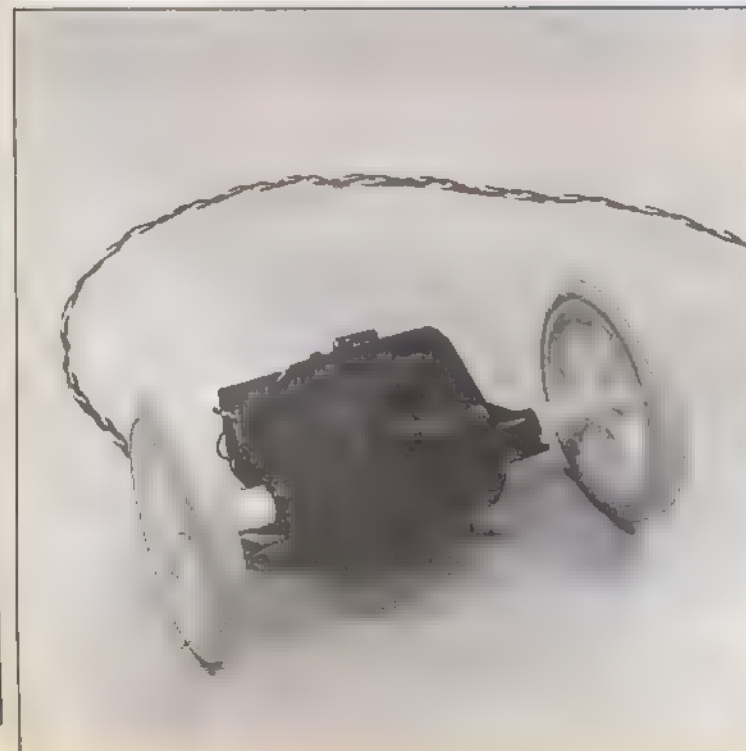
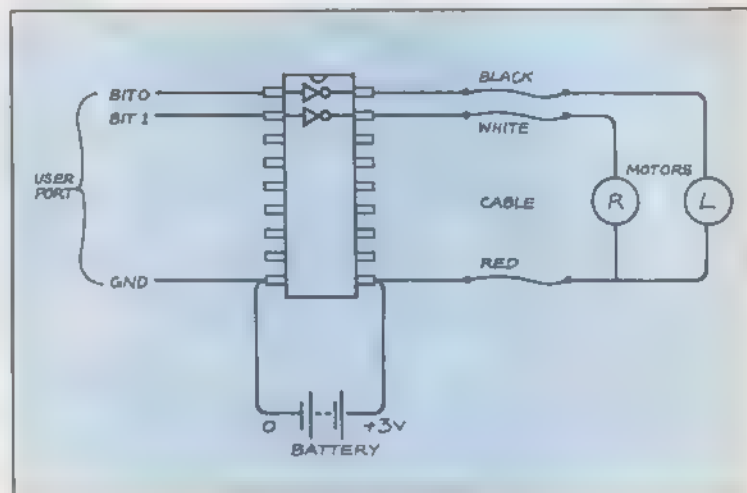
As before connect each of the Buggy motor leads to an output of the chip, left to Pin 18, right to Pin 17, the common lead going to Pin 10, together with the +3 volt point of the battery (as shown in the diagram).

The controlling inputs also make the

same connections to the chip as before, but are connected to the printer port of the Amstrad via an edge connector. For making the connections, it is important to remember that the printer pins are numbered 0 to 17 from the right when looking at the port from the back of the computer with the data recorder to your left.

Connect Bit 0 to Pin 2, Bit 1 to Pin 3 and Ground to Pin 14. One other thing to do; connect pin 11 to Pin 14 on the printer port.

You should now be ready to type in the driving software given in Listings One and Two. Using Listing One, press-



ing the 'F' key of your computer will cause the Buggy to go forwards. 'L' will cause it to pivot left. 'R' will cause it to pivot right, and Space will stop it.

Using Listing Two, when pressing 'G' the Buggy will remember the times which you held down the other keys, and retrace its course. Simple, isn't it?

As before, *Popular Computing Weekly* has arranged with Greenweld of Southampton to produce a kit consisting of everything you need to produce the Buggy costing £12.95, including postage and packing, but not the two 1.5 Volt penlight batteries you need to power it.

For anyone who wants to buy the parts for the Buggy themselves, here is the full parts list.

- 1 2-cell battery connector.
- 3 metres each of 3 colours of single core cables (for connection to the computer).
- 2 wheels.
- 3 metres of thin single core cable for wiring.
- 1 small unclad connector board.
- 1 ULN 2803 Darlington chip.
- 1 17-way 0.1 edge connector.

Greenweld are also offering an Antex CS soldering iron with solder for £5.95, to anyone buying the kit. For more tips on construction and Buggy maintenance see *Popular* Vol 4 No 11.

Listing 1

```
5 REM EXAMPLE PROGRAM
6 REM FOR AMSTRAD
10 LET A$=INKEY$
20 IF A$="r" THEN PRINT£8,CHR$(1);
30 IF A$="1" THEN PRINT£8,CHR$(2);
40 IF A$="f" THEN PRINT£8,CHR$(3);
50 IF A$=" " THEN PRINT£8,CHR$(0);
60 GOTO 10
```

Listing 2

```

5 REM FULL PROGRAM FOR
6 REM  AMSTRAD CPC464
10 DIM B(100)
20 DIM T(100)
30 LET I=0:LET N=0:LET J=0: LET K=0
100 LET A$=INKEY$
110 LET I=I+1
120 IF I<J THEN GOTO 100
130 IF A$="" THEN GOTO 100
140 IF A$=" " THEN LET K=0
150 IF A$="1" THEN LET K=2
160 IF A$="r" THEN LET K=1
170 IF A$="f" THEN LET K=3
180 IF A$="g" THEN GOTO 300
190 LET N=N+1

```

```

200 LET B(N)=K
210 LET T(N)=I
220 PRINT#8,CHR$(K);
230 FOR J=1 TO 100:NEXT J
240 PRINT#8,CHR$(K);
250 LET J=1
260 GOTO 100
300 LET I=0
310 FOR M=1 TO N
320 FOR I=J TO T(M): NEXT J
330 PRINT#8,CHR$(K);
340 FOR J=1 TO 100
350 PRINT#8,CHR$(K);
360 NEXT M
370 PRINT#8,CHR$(K);

```

DISCS ON A SPECTRUM!

We have obtained a small quantity of floppy disc interfaces for the ZX Spectrum, 'FZ BOARDS', which will interface any standard 5 $\frac{1}{4}$ drive on to your 48K Spectrum. Its own internal operating system allows you to format discs, store and retrieve both basic and code programmes and files, catalogue, backup, delete files and all the normal disc functions. Powered from the normal Spectrum supply it needs no external supply and plugs straight on to the disc drive.

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Open Forum

We are always actively seeking programs for publication - either for Open Forum, the machine pages or Star Game. When sending in a program for consideration, a clear program listing should be sent, together with, wherever possible, a saved copy on cassette. Documentation - usually not more than 1000 words - should start with a general description of the program, what it does, and then some detail of how the program itself is constructed. We pay very competitive rates, according to the length and nature of the program and the quality of the accompanying documentation.

Screen Store

on Spectrum

The Colchester Sinclair User Club had a competition amongst its members to design a *Screen\$* having something to do with Christmas, and needed a method of displaying these screens without a long loading delay, so that the judges could be given every opportunity for fairness. This program solved the problem.

Once loaded, you can load up to 5 *Screen\$* by pressing "L" to load, (from Tape or Microdrive), and use keys 1-5 to direct where the program goes in memory. You can then instantly recall the screen of your choice by pressing keys 1-5.

If you have more than one picture stored, you can press "O" and answer the prompt with how many pictures are stored, and the program then scans through the pictures automatically with-

out any key presses.

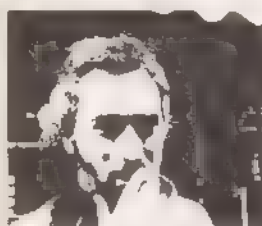
This can be used for club competitions, open evening demonstrations, etc, or just showing off your favourite pictures.

Program Notes

0 - to Scan selection
1 - to view Ink Only
C - to bring back colour
S - to Save pictures
Space - to Break out of Scan mode

```
2 CLS
5 LET q=27: LET x=1
10 LET a$=INKEY$
20 IF a$>"0" AND a$<"6" THEN GO SUB 800
30 IF a$="1" OR a$="L" THEN GO SUB 900
40 IF a$="0" THEN GO SUB 700
50 IF INKEY$="I" OR INKEY$="I" THEN BEEP .1,40: CLS : LET q=24: GO
SUB 810
60 IF INKEY$="C" OR INKEY$="C" THEN BEEP .1,40: LET q=27: GO SUB 810
70 IF INKEY$="S" OR INKEY$="S" THEN GO SUB 600
90 GO TO 10
600 INPUT #1:AT 0,0;"SAVE PICTURES FROM NUMBER > ":a: IF a<1 OR a>5
THEN GO TO 600
610 INPUT #1:AT 1,0;"HOW MANY > ":b: IF a+b>6 OR b<0 OR b>5 THEN GO
TO 610
620 PRINT #1:AT 0,0;" > TO (T)ape or (M)icrodrive"
```

The Music Box



Heavy metal

News from Stanford University in - where else? - California, brings us to the very forefront of computer music developments. As part of the race towards artificial intelligence, so it seems, a team of six researchers at the University's Centre for Computer Research in Music and Acoustics have come up with a score-writing program.

Not just any score-writing

program, you understand, but a little honey of a number that allows a computer to 'hear' music (sampling at 30 KHz) and almost instantaneously transform it into written notation including accents, tempo, key-signature, note values and metre all presented on a five line stave.

Personally, I'd like to see the beast in action because if it genuinely can tell the difference between a crotchet and a quaver as played by imperfect human beings on imperfect instruments, then it seems to me that the age of AI is well and truly here. One wonders if this was what the Musicians' Union imagined by their slogan 'Keep Music Live'.

Meanwhile, the Japanese - in the persons of a group from Waseda University working with the Sumitomo Electric company - claim to have pro-

duced a robot capable of reading music, listening to instructions and playing keyboards. The robot has more than 50 joints controlling its ten 'fingers' and two feet and is surmounted by a miniature long-lensed TV camera which gives it an uncanny resemblance to Barry Manilow.

At a cost of 300 million yen (more than £1 million), the robot doubtless gives the term 'Heavy Metal' a new meaning. The whole thing is controlled by an amazing 17 16-bit and 508-bit micros connected up by extremely fast fibre optic links. I've seen pictures of the thing and, believe me, it's weird.

Anyway, back to earth with the more mundane Commodore 64 and American software house Broderbund who have announced the introduction of a package called *The Music Shop* which supports

performance, sequencing, editing and sheet-music print-out - in the manner, presumably, of Island Logic's BBC package, *The Music System*. *The Music Shop* is not yet available over here and I hope to have a fuller review to follow. Meanwhile, it costs £44.95 and you could write to Broderbund at 17 Paul Drive, San Rafael, California, CA 94903-2101 USA.

Gary Herman

The Music Box is a weekly column with news, reviews and readers comments on all aspects of micros and music.

Any readers with experience of computer music making or companies with new product news are invited to write to drop a line explaining what they're doing to: Gary Herman, *The Music Box*, 12-13 Little Newport Street, London WC2R 3LD.


```

630 IF INKEY$="t" OR INKEY$="T" THEN SAVE CHR$ (48+b)+" PICTURE"+CHR$
(32+(51*(b>1)))CODE 23088+a*6912,b*6912: RETURN
640 IF INKEY$="m" OR INKEY$="M" THEN SAVE "*"CHR$ (48+b)+"
PICTURE"+CHR$ (32+(51*(b>1)))CODE 23088+a*6912,b*6912: RETURN
650 GO TO 630
700 INPUT "> ENTER NUMBER OF PICTURES ";p
710 IF p<1 OR p>5 THEN GO TO 700
720 FOR h=1 TO p
730 LET x=h: GO SUB 810
740 FOR z=0 TO 500
750 IF INKEY$=" " THEN RETURN
760 NEXT z
770 NEXT h: GO TO 720
800 LET x=VAL a$
810 RESTORE 820: FOR n=23296 TO 23307: READ a: POKE n,a: NEXT n
820 DATA 17,0,64,33,0,0,1,0,27,237,176,201
825 POKE 23304,q
830 LET s=30000+((x-1)*6912)
840 POKE 23301,INT (s/256): POKE 23300,s-((PEEK 23301)*256)
850 RANDOMIZE USR 23296
860 RETURN
900 PRINT #1;AT 0,0;"> LOAD A PICTURE, SELECT 1 ~ 5"
910 LET a$=INKEY$: IF a$<"1" OR a$>"5" THEN GO TO 910
920 LET x=VAL a$
930 PRINT #1;AT 0,0;"> FROM (T)ape or (M)icrodrive"
940 IF INKEY$="t" OR INKEY$="T" THEN LOAD ""CODE 30000+((x-1)*6912):
GO SUB 810: RETURN
950 IF INKEY$="m" OR INKEY$="M" THEN GO TO 970
960 GO TO 940
970 INPUT AT 0,0;"> PLEASE ENTER NAME OF PICTURE TO BE LOADED ";
BRIGHT 1;"> "; BRIGHT 0; LINE 1$
980 IF 1$="" OR LEN 1$>10 THEN GO TO 970
990 LOAD "*"m";1;1$CODE 30000+((x-1)*6912): GO SUB 810: RETURN

```

Screen Store
by M Alston

Book Ends



Book The Commodore 64 Adventurer Price £6.95 **Mike**
Commodore 64 Supplier
Duckworth, The Old Piano Factory, 43 Gloucester Crescent, London NW1.

dipping furtively into it throughout the game.

Bob Chappell is supplying just such temptation with *The Commodore 64 Adventurer* which gives comprehensive solutions, and maps, for four major games: *Heroes of Karn*, *Lords of Time*, *Voodoo Castle* and *The Count*.

Following the now well-established custom of cheat-sheets, the hints and solutions are jumbled so that you needn't find one that you want to work out for yourself.

The author has taken obvious care to give away only so much with each clue, and adventurers stymied by four of the more devious packages for the CBM64 might find this a valuable standby.

Barbara Conway



Book Soft Computing: Art and Design Price £10.95 **Micro Any Supplier**
Addison-Wesley.

This book will infuriate many hardened hackers, who will claim that its author, Brian Reffin Smith, hates computers.

But the target of his attack is really our general concept of the micro, and a major part of this thought provoking polemic is an attempt to melt the reader's preconceptions towards the 'soft computing'.

Out go those currently

ubiquitous trends, rigid grids on screen and structured programs deep within; the idea of the organic computer links metaphorically to art which may actually arise out of bugs!

Those for whom computers are solely and strictly information crunchers will now be tearing their hair, but those who are not scared by words such as 'zeitgeist' will find that this mixture of aesthetics, sociology and politics will broaden the scope of their micro more than a thousand books of listings.

John Minson

Everyone who's ever got stuck in the Goblin's dungeon or trying to get past an immovable grate will know the desperate urge to get just a tiny clue for that one problem. The trouble, as reviewers know all too well, is that if somebody helpfully supplies you with the answers to the tricky bits, to be used only in extremis, the odds are that you will keep



Master players

The first person to have written in having solved *Pyjamarama* on the Amstrad is Kieren Beal of Chichester who sent a very full list of how he did so. Kieren scored 89% after 4911 paces and has pronounced it the best game yet for this computer (I would agree, Kieren, if I hadn't seen Virgin's *Sorcery*).

Kieren wants to know what use the joystick, conveyor belt controller and bowl have as he has now set himself the task of scoring 100%. Well, the problem with games of this sort is that you can't really be sure that the percentage reflects anything logically, but the people who may be able to tell us are Mark Buttle and Declan Page of Earlsfield, London, who finished the Amstrad version at the end of January with 98% and 2143 paces. How about it?

Sticking with the Amstrad for a moment, here's a letter from S White of Glenrothes who wants to complain about the number of bugs he/she has found in Microbyte's *Er'bert* ranging from the fact that the score resets when it reaches 10,000, the fact that Boris the gorilla causes Bert to be killed if he falls off the cubes of his own accord, Bert is sometimes thrown over the edge of the top cube for no reason at all, to the fact that you sometimes get caught in never ending games where the next level does not appear even when all cubes have changed colour.

Can someone say whether this is just a duff copy? I know that these bugs are irritating, especially when you are going for a high score, but it doesn't make the game unplayable and I still think that *Er'bert* has the best QBert graphics I've seen and is really pretty cheap for a piece of Amstrad software.

Now then back to the Spectrum (we really do need to

have more stuff for the Commodore and BBC so let's hear more from you lot out there. It doesn't have to be Pokes - anything from comments on you favourite games to playing tips will be welcome, as long as there are no complaints about the amount of Spectrum letters we print). Here from Larry Johnson of Redditch is a routine for endless lives on the Elite's *Fall Guy*. Run this program before playing the tape.

```
10 Clear 24100
11 Load "" Code
12 Rand usr 65100
13 Load "" Code
14 Poke 44204,0
15 Rand usr 41200
```

From Duncan Parsons of Tunbridge Wells is a way to get on to any screen of *Cavelon* - hold down the row beginning QWERT and that beginning ASDF simultaneously and the message 'What do you want Chris?' should appear giving access to any screen. Duncan also gives us all the codes for the different screens of *Whealie* by Microsphere. "1. ENTER 2. WITTY 3. SHARK 4. BEBOD 5. XENON 6. ZX83B 7. ZMQL3 8. HRMEZ".

Whilst mentioning *Cavelon*, let's finish with this letter from Jim Cobey of Skegness who wants to recommend the game *BMX Stunts* by Jetsoft, who wrote both *Cavelon* and a follow-up called *Cavelon 2*. Jim reckons that this is the best BMX game that he has seen.

Let's get some of your high scores down this week, also, before we get going in earnest on our competition. From Dean Parsons of Tunbridge Wells comes these

scores - *Chuckie Egg*, level 20 222 350; *Arcadia*, level 8 582; *Zoom*, level 12 2500 with 499 refugees; *Kong*, level 7 12351; *Atic Atac*, 3280 and 91%. Dean also offers these scores *Poke* - *Sabre Wulf* poke 43575,255; *poke* 45920,258 (especially for R J Baker of Kennington) *Tutankhamun* poke 27783,0; *Lunar Jetman* poke 36966,224; *poke* 36945,3.

Dean also wants to know whether anyone can explain what he is supposed to be doing in *Lunar Jetman*. Well, I could give you some clues. Dean, but I would like to see one of our readers, who have reached some extraordinary levels on this very difficult game, give us all some tips.

Vincent Sibley and Keith Mac of 31 Connor Rd, Dagenham, Essex, have finished *Pyjamarama* with 98% on CBM 64 and 98% on the Spectrum. They will give in-depth tips to anyone who writes with a SAE. If anyone has any Mikro-Cen posters, etc, then they would be pleased to have some.

Andrew Hay of Sidmouth, however, must be our master games player of all time - he has finished *Pyjamarama*, 3,378 and 87% and *Underwulde* with 28%, *Knights Lore* in 35 days and 63% and *Atic Atac* in a best time of 5:05, but that's only the beginning! How about Daley Thompson, 277,095 on day 1 and 1,008,782 on day 2, *Ant Attack*, 46,762, *Chuckie Egg*, 343,440, *Jumping Jack*, 5085 and 11 hazards, *Space Invaders*, 1,673,760, *3D Combat Zone*, 107,000, *Manic Miner*, 1,018,161 on level 580 and 44 lives left, *Zoom*, 1,772,580 on

level 48 and 643 refugees, *Arcadia* over 200,000 level 176 with 111 lives left, *Jet Pac*, 493,500 on level 139 and *Lunar Jetman*, 81,795 on level 13. I hope you write in with some *Jetman* tips, Andrew, and I shall expect to see your name in our competition.

By far the best score we've had for *Chuckie Egg* is 402,100 on level 31 on the Electron from Tony Jacques of Brighton. Here are some tips: "On screen 6, 14, 21 and 30 you can move from the bottom left platform to the middle by pressing jump, up and right simultaneously which gives you a boost from the bottom of the ladder and is the only way to get past the duck. To get the lift on screen 31 go to the double wall on the right and press up and right together and jump. On level 31, you must clear all the screen in one go (except the bottom hanging egg and the hanging egg halfway up) otherwise by the time you catch the lift, the duck is on the top platform when you there. Can anyone help me on level 32 as I can't see any way of getting to the top."

Finally this week, rumours are buzzing about the quality of Incentive's version of *Moon Cresta* soon to be released. Comparing the cheesy versions of *Galaxion*, etc, that abound, I had always thought it a shame that people with the programming talent of the top Spectrum games producers like Ultimate had never released versions of arcade classics. Now it seems that finally someone has got round to doing so and I can't wait to see the results.

Tony Kendle

We are searching for the top UK computer games player - the best there is!

The very best of Britain's game players will get to fight it out on a number of top secret new games - scheduled for release in the autumn.

Here's how it works

Study the table below and look at the columns for the machine you have - these are the games you'll need to master. Send your high scores in on the form below, making sure that your scores are authenticated by a responsible individual signing the form. Any score achieved using technical short-cuts - such as infinite lives Pokes - will not be accepted.

Between now and September Tony Kendle will be keeping you up to date on the *Arcade Avenue* page with just who has the scores to beat. Then, in September, the top three scores on each machine will battle it out for a place in the final and the chance to be the first to play our 'top secret' games.

	Commodore	BBC	Spectrum	Amstrad
Game 1	Stardust Express	Elite	Technician Ted	Sorcery
Game 2	Beach Head	Jet Pac	3D Star Strike	Sploit
Game 3	Shoot the Rapids	Chuckie Egg	Cyclone	Manic Miner

Game Wizard Entry Form

Micro

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Crescent, Lansdowne
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Centre, 78-80 Liberty Software,
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St Georges Road, Tel 0242 52879.
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Place, Tel 0256 22079.
Southampton, Business
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Tony Bridge's Adventure Corner



Spells and magic

Saturday 16 March was a very important date for adventurers. It was the official opening of The Adventurer's Guild in Gravesend - regular readers will remember that I mentioned it a couple of weeks ago. The Guild will, I'm sure, become an important meeting-place for adventurers and Role Players in the future, offering as it does, a source of discounted adventure software and Role-Player's aids as well.

A welcome feature is one of the first Scott Adams Adventure Centres - no more searching for that elusive Adventure International or Channel 8 program, you'll find them right here (and as readers of *MicroAdventurer* will know, Ken Matthews is one of the greatest Adams experts around). The opening day was well attended, with seasoned adventurers from all over the country, like Hugh Walker and James Fisher, in attendance as well as many local heroes (thanks, Dave, for your advice on *Sherlock*).

Ken Matthew's Telephone Helpline is already heavily used by several hundred adventurers, who have been helped out of many a tight situation by Ken and his knowledgeable colleagues. Don't be shy - if you're stuck in an adventure, give The Guild a call and you're almost certain to be given some sound advice! Local Role-Players will be pleased to know that a Dungeon is presently under construction and should be in operation soon. The Adventurer's Guild, 26 Harmer Street Gravesend Kent, 0474 334008.

That's an important new outlet for

adventures in England - what of other countries? Mark Murphy over in Dublin, has, he says, had a burning ambition to start a software house, and has now realised that ambition. He has done something a little innovative and started a hire club for Role-playing games. Combined with membership of the hire club, comes membership of a free computer help club, which will also sometimes be able to give a discount on software. Apart from all this, Mark's company is also offering what he says are "possibly the highest royalties because we are new and not greedy" - the initial idea, says Mark, is to release a compilation tape containing six graphic and six text adventures. If you're interested in seeing your game 'in print' (check any paperwork with a solicitor) or even just in joining the club, write to Tribute, Windermere, Cherrywood Road, Loughlinstown, Co Dublin.

And Thomas Wagner writes from Germany to inform me and, through the Corner, other German adventurers, of a mail-order outlet in Augsburg. His company offers all the software and hardware that you read about in *Popular Computing Weekly*, and offers the same prices as those in Britain. Write for their 70-page catalogue to Softwareversand, PO Box 112243, D-8900 Augsburg, West Germany.

John Cousins, of BFPO 16, which coincidentally, is also in Germany, is having fun and trouble with Infocom's *Enchanter*. This is an adventure in which spells and magic play a large part, and a great number of weirdly-named spells are available (though they have to be learned as experience is gained).

John's problems start with the adventurer and the door guarded by gargoyles, flames and so on. First of all, John (and here I won't lapse into the usual Corner Code, as the solutions are rather complex), you must cast Vaxum on the adventurer before casting Zifmia. This befriends him, although he will now covet your possessions, in particular, the Egg. He will follow you wherever you go, with his beady eye on the Egg, and you must lead him to the door, telling him to open it. You can now sit back and watch page after page of the most glorious Infocom story-telling scroll up the screen - the end result of which is that the door turns out to be merely wooden

after all, the horrible guardians being merely illusion all along. As for the Box with the rope tightly coiled around it - you'll need the Dozmo spell from the Gallery (yes, that's what else is in the Gallery, but you'll need to enter without the light to find it). Learn this spell, and it will allow you to be captured by hunched creatures, who will then take you and sacrifice you. But never mind! Oozmo will protect!

Now to the Turtle - you will, of course, need Nitfol, which allows you to do a Dr Dolittle. Tell the turtle to follow you and take it to the room with the hammers. Cast Exex on it and tell it *Go SE, GET SCROLL* and *NW*. Finally, the Temple - here you must use Oozmo and then get the Trebor spell.

If you have completed *Tombs of Xeiops*, maybe you can help Dawn Woodruffe of 3 St Andrews Close Ashchurch Tewkesbury Glouce GL20 8LF. She wants to get past the Cobra, and also wants to know what the eerie smile at the same place can mean.

Help is also needed in the new QL adventure, *Zkul*, from Talent Systems of Scotland. First, how do you get the Dwarf feed you, and how do you get back up the rope which leads down to the parafin lamp?

Let me bring to your attention a dashingly attempt to lay bare the secrets of all the major adventures available. The first inkling of this came with a book called *The Adventurer's Companion*, by Mike and Peter Gerrard, adventure's own Mafia. This subversive volume contained nothing less than the complete solutions, with maps, of four games - *The Hobbit*, *Colossal Cave*, *Pirate Adventure* and *Adventureland*.

Duckworth, the book publishers, have followed this initial release with three more. Mike Gerrard has written one, *The Spectrum Adventurer*, with solutions to four more adventures, while Bob Chappell has contributed two volumes, *The BBC Micro Adventurer*, and *The Commodore 64 Adventurer*, each containing four more "100% solutions". Each adventure is covered using the same format as many help sheets (like those from Level 9, for example). Look up the problem in a long list, then turn to the appropriate number, where the answer will be revealed. The books aren't bad value, at £3.95 each, and much of the text is drily witty, as you would expect from Gerrard and Chappell.

A few weeks ago I mentioned *Jack in Magicland*, an adventure from Turtle Software. They have kindly sent me more information, and confirmed my suspicions that this adventure, which I liked a great deal, was written for 6 to 12 year-olds, by P W Rogers, a primary school teacher. For one reason or another, the supporting package wasn't seen by me, but it includes full notes for teachers and a solution. Turtle Software, Wychwood, 40 School Road, Finstock, Oxford OX1 3DJ.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair - help is at hand.

Fill in the coupon, explaining your prob-

lem, send it to us, and a fellow adventurer may be able to help.

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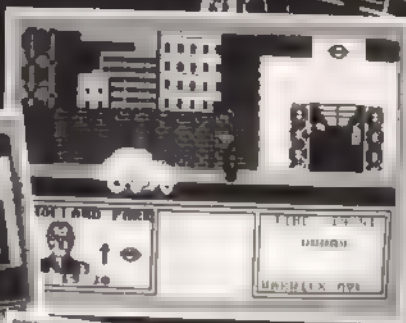
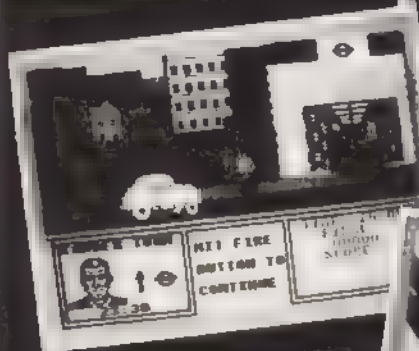
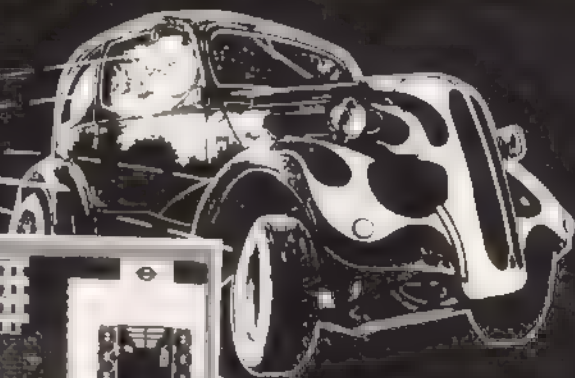
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Binary into decimal

A reader from Ludlow, Salop writes

Q I have been trying to write a program to convert binary numbers into decimal, but with no success. I tried this program

```

1 Input a
20 Print Bin a
20 Goto 10
    
```

But the computer won't accept line 20. Please tell me what is wrong and how I can correct it.

A The Bin clause in Spectrum Basic is purely concerned with the Data statement and is completely out of context within your statement 20. Which is why the computer has rejected it.

The following routine, whilst not very elegant, will convert binary numbers of any length (within reason) to decimal. The program does not contain any error checking statements.

```

10 Input a$
20 Let a = 0 : Let j = 1
30 For i = Len a$ To 1 Step -1
40 Let a = a + ((2 ^ j) * (Val a$(i To i)))
50 Let j = j + 1
60 Next i
70 Print a
    
```

More knowledge

Steven Ward, of Ramsgate, Kent, writes:

Q I read an article some time ago regarding the Elan Enterprise which said that it had better graphic resolution than the BBC B, it also commented its brilliant sound effects and colour.

Not content with this knowledge I would like to know more about this brilliant (maybe) micro. So could you tell me where to write to for an information sheet (if anywhere)?

A As you know, the Enterprise is available in reasonable quantities now, although software is still in limited supply.

A number of retailers are now stocking the Enterprise so information should not be difficult to come by, and you will also be able to see the machine in action (much better than merely reading about it). Nevertheless, you can contact Enterprise on 01-739 4282.

Multitude of garbage

Robert Stalker, Bonnybridge, Stirlingshire, writes:

Q I have written three times to BBC Radio 4 but have received no reply of any kind. Last year I purchased a Basicode kit from the BBC to record their transmissions on Radio 4's Chip Shop. Success was fair, as most times errors were rather plentiful, but with a little patience programs could be amended to run on a BBC model B. This season is a different matter as all transmissions so far have turned out a multitude of garbage no-one can decipher. The new time of 01-55 and the fact that transmissions are no longer on VHF (at least in my area) could perhaps be the reason. The BBC are making no comments either way. If you could use your column to find out other readers' views and if indeed anyone has any explanations to offer I would be grateful to hear them.

A It would be indeed interesting to hear of other readers' views on this topic, or are you all disinclined to get up at that time in the morning?

I have also tried to contact someone at the BBC for an explanation, or at least some advice that I could give, but with the same result as you... nothing.

Serious problem

Michael West of Bingley, West Yorkshire, writes:

Q I own a Spectrum that was given to me by a relative after the guarantee had expired. It is an issue 2, 48K, the main problem with it is that it will not load programs that take up most of the memory (eg *Scrabble*). It can however load and run other 48K programs. I can also *Poke* and *Peek* the memory above 32767. I have never had any trouble loading 16K programs. *Dim A\$(40000)*, *Print Len A\$* gives 38976.

Looking at the classified section, I have seen many ads for micro repairs, could you recommend one?

A The fact that your *Print Len* statement gives you the wrong answer (40000 should be printed) indicates that you do indeed have a serious problem with your machine.

There are a number of firms specialising in micro repairs. Most of them advertise in PCW. I can recommend two, Mancomp and R A Electronics. That is not to say that the other firms are not as good, it is just that I have not had any experience of using their services (or have not had any reports from people who have).

No listing

Lefevre Quantin, of Sint-Pieters-Leeuw, Belgium, writes:

Q I've designed a game and I want to make it impossible to list the program. How do I do this? I have a Spectrum.

A A short question but rather a longer answer I am afraid. The first step is to make the program break-

proof (since if it can't be broken into it cannot be listed).

This can be done by setting the DF S2 system variable to zero. Unfortunately this means that you cannot use any commands which use the message area of the screen (such as *Input* or *Save*).

You must also make certain that your program does not issue any *Scroll* messages. Having done this, if anyone presses *Break* the effect will be to *New* the program. Now this is all very well but how do you stop people from using *Merge*. This can be done by including the following statements at the end of your program:

```

9900 Let PP = Peek
23653 + 256 * Peek 23654
9910 Let QQ = Int(RND * 256)
9920 Save "name" Code
23552 - QQ, PP - 23900 + QQ
9930 Run
    
```

These rather peculiar statements make it seem as if your Basic program is actually machine code. As machine code cannot be *Merged*, and you have already prevented the use of *Break* (by *Poke* 23659,0) the problem of unauthorised listing is solved.

Spectrum upgrade

S Mills, North Cheam, Surrey, writes:

Q My son is interested in getting a proper keyboard for the Spectrum. I have seen several keyboards and I am not sure which one to buy, because I have interface 1 and microdrives.

Which one would you suggest (the cost does not matter)?

A My advice would be to take advantage of Sir Clive's offer and get your Spectrum upgraded to a Spectrum+. The cost of £30, if fitted by Sinclair, is not expensive, and you have the guarantee that you will have no problems (well, not many) in fitting Interface 1 etc.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Phil Rogers and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, PCW, 12-13 Little Newport Street, London WC2R 3LD

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12970, 12980, 12990, 13000, 13010, 13020, 13030, 13040, 13050, 13060, 13070, 13080, 13090, 13100, 13110, 13120, 13130, 13140, 13150, 13160, 13170, 13180, 13190, 13200, 13210, 13220, 13230, 13240, 13250, 13260, 13270, 13280, 13290, 13300, 13310, 13320, 13330, 13340, 13350, 13360, 13370, 13380, 13390, 13400, 13410, 13420, 13430, 13440, 13450, 13460, 13470, 13480, 13490, 13500, 13510, 13520, 13530, 13540, 13550, 13560, 13570, 13580, 13590, 13600, 13610, 13620, 13630, 13640, 13650, 13660, 13670, 13680, 13690, 13700, 13710, 13720, 13730, 13740, 13750, 13760, 13770, 13780, 13790, 13800, 13810, 13820, 13830, 13840, 13850, 13860, 13870, 13880, 13890, 13900, 13910, 13920, 13930, 13940, 13950, 13960, 13970, 13980, 13990, 14000, 14010, 14020, 14030, 14040, 14050, 14060, 14070, 14080, 14090, 14100, 14110, 14120, 14130, 14140, 14150, 14160, 14170, 14180, 14190, 14200, 14210, 14220, 14230, 14240, 14250, 14260, 14270, 14280, 14290, 14300, 14310, 14320, 14330, 14340, 14350, 14360, 14370, 14380, 14390, 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WILL SWAP Sphinx Adventurer and desk diary for electron any good condition games, for Acorn Electron Matthew Russell 39 Balmoral Road Sutton at Hong, nr. Dartford Kent Tel: Farnhamham 364894

WANTED Popular Computing Weekly, Volume 1 Number 2, 11, 12, 13, 15. Will only Contact V Moore + Baddolley House Oxstall Lane, Gloucester GL2 9HW

WANTED CBM 64 + C2N Data Recorder. Will pay £150. Must be in working order. Preferably local applicants. Tel: Clevedon (near Bristol) 874203 Phone after 4.30

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WANTED, cheap ZX printer (£15) o.n.o. Printer Rolle also ZX81 games for sale £2 each o.n.o. Tel: 568 3416 after 6pm and ask for Dave

PAGE Preston Computer Club meet on the third Wednesday each month at St Anthony's Social Club, Cadley Causeway, Fulwood, Preston, Lancs. Monthly newsletter. Membership £6.50, visitors 75p. Details Phone Preston 22648

WANTED Alphacom32 printer with I/F for Spectrum + any original s/w Tel: Paula on 01-888 2793

WANTED VTX 5000 Modem, OEL Teletext adaptor, Printer I/F + S/W for William Stuart sound I/F (for Spectrum) Tel: (Adrian) 0491 511448

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WANTED ZX printer and/or Ian Logan's "Complete ZX Rom Disassembly" Write to Dave, 10 Ansel Road, Sparkbrook, Birmingham B11 1TN

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ELECTRON User Contact G Shring on (0501) 45883 or write: Loch Maree Way Whitburn, West Lothian EH47 0RW to swap games mags tips etc. All letters answered

SHARP M280A owner wishes to swap software. Information ideas ect Contact R Sturdy, 34 Bramble Gardens, Beiton, Great Yarmouth NR31 9PE Tel: 781858

WANTED any Interceptor Adventure, Jewels of Babylon if possible. Will swap or buy Phone Halesworth 2689 Must be an original with packing On Amstrad CPC 464

WANTED 48K Spectrum penpal to swap news, tips and programme write to Peter Machen, 15 Ridge Road, Hillcrest, 3610, Natal, South Africa. Anyone. Anywhere. Please send list of programs

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COMPATIBLE The recorder (broken pause button) otherwise fine. Mains battery. Will swap for any Spectrum 48K software Tel: 0236 32898 ask for Steve

WANTED portable twin cassette system Swap for Slack light rifle over £100 software and cash. Any makes Tel: (0625) 524284

WANTED Drapagos or Dillados disc controller cartridge for Dragon. Must be working. Drive not required. Good offer. Roger Tel: 021 382 3106

WANTED urgently Epson RS80F1 printer or similar with Swap Sharp M280A or basic pascal forth 100 + Programs excel condition John Weaver, Tel: Stratford 3161 ext. 584 working hours only

CHALLENGE spirit cassette player for ZX Spectrum, excellent condition, will swap to RS232C printer (Dot matrix) Tel: Bristol 663502

SWAP Acorn Electron with plus one, data recorder joystick, £175 worth of software for Atari 800XL with disc drive or soft for £250 Tel: 890 2454 5-6pm

WANTED the Quilt and the Illustrator, will pay £6 for Quilt and £8 for Illustrator, originals only please. Tel: (09367) 5410

IMPERIAL 90 Typewriter duplicator, £100 of stationery, Sharp PC1211 computer. Brand new Dragon 32 will swap some or all for better quality printer VIC 20. Elvin, 214 Hornington Rd. Sheffield.

WANTED Peta Position on 16K Rom cartridge for Atari 600XL in as new condition. Willing to pay up to £8 Tel: (0292) 718387 after 5pm. Ask for Charles

SWAP any VIC 20 + 16k swappable (brand new) + 5 books + 2 cartridges - £200 software and joystick (C2N not included) a.i boxed vgc for your CBM64 - leads and manual Tel: Hurnchurch 45284

ATARI 410 recorder in good condition Tel: 0227 86514

WANTED Electron mushroom Rom board and graphics Rom Tel: 01-567 4351 (ask for Laveni)

WANTED BBC Swap CBM64 + cassette unit, Quickshot II, mags, books + £250 worth of original s/w. Will pay cash for s/w extras. Tel: 031-651 3411 before 6pm

SWAP Atari 600XL 1010 recorder, 3 cartridges, 4 cassette games, joystick Swap for Amstrad CPC464 or sell Tel: 01-637 7763

WANTED Prism VTX 5000 modem, fair price offered Tel: 0843 68622 (after 6pm)

WANTED Atari Disc Drive. Preferably working order. Non-worker considered, good price paid Tel: Caegeoria 760172

SWAP CBM 64 with joysticks and tape recorder for Spectrum with accessories. Tel: 02572 56061

WANT good educational software, 80 track or 40 track d/s disc drive, and RGB colour monitor for BBC possibly also Solidisk 128K or expansion. Tel: Harrogate 0423 872045 can collect

WANTED Commodore 1541 disc drive in exchange for a new 1520 printer/plotter and £80 of software. Tel: Reigate 43905 for details

WANTED broken Spectrums good price paid. Write to Mr K Booth, 26 Bassegreen Close, Sheffield S12 3FB

Spectrum for Sale

SPECTRUM SOFTWARE or sale Mr Wimpy Eskimo Eddie and Invasion III Body Snatchers, only £2.50 each, originals only. Tel: 0723 864073 after 5pm

SPECTRUM BOOKS on machine code 5 all brand new inc rom disassembly worth £38 £12 the lot unused white lightning £8 W. H. Smith, Computer Cassette Recorder, Now £10 0443-460785

SPECTRUM SOFTWARE spurn of oval, joust £3 each Body Voyage into the unknown £1 Volcano £4.50 also Boep amplifier £10 brand new unwanted Xmas present used twice. Steven Holmes, 12 Grove St, Gorseaston Swansea, SA4 2FG

SPEC/48K Recorder Interface 2 Kempson in comp compatible Tape/Rec all Leads included 44 gram Timos Swap for Commodore 64 + CM2 tape recorder Sell for £190 Tel: F K Greenhulst 22334 ask for Tom

48K SPECTRUM Pascal Dvopac Dungeon Adventure Hobad many more. 3 books, Machine code and Pascal monitor load. Brilliant insanity adventure £100 only. Tel: Exeter 981545 after 5 pm Danny

SPECTRUM SOFTWARE originals for sale Skobdazo, Mchpoint Nightgunner, Fighter Pilot, Booty Valtalla, Football Manager, Scramble Arcadia, Zoom, Hualthaw ATC, Crusling, Space Shuttle. Labyrinth £35 the lot including p&p callers £39 Brentwood 810116 after 4.30pm

48K SPECTRUM in DK Tronics keyboard on/off switch fitted £85. Tel: 01-868 3451

SPECTRUM 48K Data recorder + interface POS, Keyboard, 2 x microdrives spare cartridge, programmable joystick interface Quickshot joysticks 2 Curral Speech unit, Light pen unit, 15 original games Books + Mags £220 ono Tel: 01-771 3448 after 6pm

SPECTRUM PROGRAMMABLE joystick, bud minterlate program £15 ill £3 Frank in Silen £3 Amateur T.V Converter £20 Tel: Romford 48498

SOFTWARE FOR SPECTRUM Eye of the Star Warrior, Spotpedit, Pop Quiz and Auto-copy all for £8. Tel: 01-348 3924 and ask for Graham

48K SPECTRUM cassette recorder and software including Andriod 2 Pyramarama Automata Arcadia swap for Commodore 64, cassette deck and preferably joystick Tel: 0604 718370 at any time

CAMBRIDGE PROGRAMME interface for Spectrum £15 Tel: 05436 12055

SPECTRUM SOFTWARE for sale Allen 8, Gift from the Gods, Zaxxon, US Gold £6 each Boulder Dash, Pyramarama and Hunchback two only £4 each Contact P Regnard, Ghatonbury, Dunnington Road East Grinstead Sussex

48K SPECTRUM, DK Tronics keyboard tape recorder + joysticks, hempsstead interface Curral microscopes, ZX printer sound amplifier, 80 s/w tapes. Tel: York 7882741

Wiz 20		
1	(5) Doodlebug	(MasterTronic)
2	(2) Mickey the Bucky	(Firebird)
3	(-) Bullet	(MasterTronic)
4	(-) Psycho Snapper	(MasterTronic)
5	(4) Perils of Willy	(Software Projects)
6	(8) Flight 018	(Craig Communications)
7	(3) Phantom Attack	(MasterTronic)
8	(-) Hunchback	(Ocean)
9	(7) Underarms	(MasterTronic)
10	(-) Maze Gold	(C.S.M.)
	(Compiled by Webster Software)	

Commanders 64		
1	(3) Chiller	(MasterTronic)
2	(-) Mega-Hits	(Bess Jolly)
3	(5) BMX Racers	(MasterTronic)
4	(-) Polo Position	(US Gold)
5	(10) 1988	(MasterTronic)
6	(3) Booty	(Firebird)
7	(7) D.T. Decathlon	(Ocean)
8	(-) Buck Rogers	(US Gold)
9	(-) Football Manager	(Addictive)
10	(-) Big Mac Mad Man	(MasterTronic)
	(Compiled by Webster Software)	

Spectrum		
1	(1) Road Over Moscow	(US Gold)
2	(-) Space Leo	(US Gold)
3	(5) Booty	(Firebird)
4	(3) Dukes of Hazard	(Elite)
5	(-) Mega-Hits	(Bess Jolly)
6	(4) Alvin &	(Ultimate)
7	(8) Airwolf	(Elite)
8	(-) Formula 1 Simulator	(MasterTronic)
9	(-) Wizards Lair	(Bobbie Sue)
10	(-) Skool Daze	(Microphare)
	(Compiled by Webster Software)	

Dracon 32		
1	(1) Manic Miner	(Software Projects)
2	(3) Hunchback	(Ocean)
3	(3) Chuckie Egg	(A & P)
4	(3) Dragon Chess	(Ocean)
5	(-) Fodis	(Bess Jolly)
6	(10) Dabban	(MST)
7	(6) Chase	(Dragon Data)
8	(5) Business Accounts	(MST)
9	(-) Buzzard Ball	(Microdeal)
10	(-) Leggit	(Imagique)
	(Compiled by Webster Software)	

SBC 8		
1	(1) Football Manager	(Addictive)
2	(-) Ultron	(C.S.M.)
3	(3) Castle Quest	(Microphare)
4	(-) And Drupe	(Firebird)
5	(-) Gold Digger	(Firebird)
6	(-) Bird Strike	(Firebird)
7	(-) Castle Quest (disc)	(Microphare)
8	(5) Polo Position	(Atari)
9	(8) Spectopede	(MasterTronic)
10	(Compiled by Webster Software)	

Atari		
1	(1) F15/Strike Eagle	(Centromech)
2	(-) Compilation Tape 1	(English)
3	(5) Attack of Mutant Camels	(Lamasoft)
4	(-) Colossal Chess	(English Soft)
5	(4) Zaxxon	(Centromech)
6	(5) O'Reilly's Mine	(Centromech)
7	(3) Solo Flight	(Centromech)
8	(-) Space Shuttle	(Microdeal)
9	(-) Invitation to Programming	(Atari)
10	(-) Centipede	(Atari)
	(Compiled by Webster Software)	

Amstrad		
1	(1) Sorcery	(Virgin)
2	(2) Fighter Pilot	(Digital Integration)
3	(5) Mini Office	(Dabban Pub)
4	(-) Punchy	(Amsoft)
5	(-) Heathrow	(Hewson)
6	(8) Flight Path 737	(Amsoft)
7	(4) Teasmach	(CRL)
8	(9) Snooker (Steve Davis)	(CDS)
9	(3) Super Circus	(CP Soft)
10	(2) Jewels of Babylon	(Interceptor Micro)
	(Compiled by Webster Software)	

Event	Date	Venue	Admission	Organisers
Second 1000 Colony Show	Mar 30-31 10.00am-6.00pm	Boyd Horticultural Hall Weymouth, Dorset SW1	£3.50 adults £1.50 children	Computer Marketplace 01-850 1612
Independent QA User Group Workshop	March 31	University Arms Regent St Cambridge	10.00am	Brian Pann 0603 564771
Computer Fair	March 31 10.00am-6.00pm	Duncan Bowen Youth Wing Kingsnorth Rd Ashford, Kent	50p adults 25p children	J Panning Ashford 28804
Northern Computers Show	April 16-18 10.00am-6.00pm	Belle Vue Manchester	Free in advance from organisers	Reed Exhibitions 01-643 8040
Apple II	May 9-10 10.00am-8.00pm May 11 10.00am-4.00pm	Novotel London W8	Free in advance from organisers	Database Publications 061-486 8383
Electron & BBC Micro Open Show	May 9-11 10.00am-6.00pm May 12 10.00am-4.00pm	New Horticultural Halls London SW1	£3.00 adults £2.00 children	Database Publications 061-486 8383

Readers' Chart No 17

1	(5) Alien II (Spectrum)	Ultimate
2	(1) Knight Lore (Spectrum)	Ultimate
3	(2) Ghostbusters (Spectrum/C64)	Activision
4	(6) Match Day (Spectrum/C64)	Ocean
5	(4) Manic Miner (Spectrum/C64/Amstrad/MSX/Dragon)	Software Projects
6	(-) Skool Daze (Spectrum)	Microsphere
7	(-) Jet Set Willy (Spectrum/C64/Amstrad)	Software Projects
8	(-) Technician Ted (Spectrum)	Hewson
9	(8) Booty (Spectrum/C64)	Firebird
10	(-) Everyone's a Wally (Spectrum)	Mikro-Gen

Winning phrase No 17: "Chernobyl - Siberia's glum ghost" from D Holloway, Castle Close, Calverton, Nottingham, who wins £25. Other contenders who narrowly missed include: "Imagine returns - oh no!" from A Choo-Kang of Fife, "Kent miners shout 'Bash McGregor'" from J Vulkan of Harrow, and "Burn the Sinclair trike!" from N Bond of Cardiff.

Now voting on week 19 - £25 to win

Each week *Popular* is compiling its own special software top ten chart - compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever - but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 19 closes at 2pm on Wednesday April 3 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name	My top 3: Voting Week 19
Address	1
.....	2
.....	3
My phrase is:	

New Releases

INFECTIOUS

Fantastic Voyage is a game that I saw at a preview months ago, but it has only just been issued. The game is another movie spin-off, but this time I don't suppose the licensing rights cost too much since the



original film was a dire affair starring Raquel Welch and Donald Pleasance and has been on TV not a few times.

The basic idea of the film has been retained for the game - you are a tiny person searching through the nooks and crannies of a human body - a dangerously ill scientist - looking for eight pieces of a submarine which you must assemble in the body's brain. This is supposed to cure him, though personally I'd have thought a submarine on the brain would at least cause the occasional headache. The different screens depict, obviously, the different parts of the body and in each section a different problem awaits - in fact, what you have is a dodge/timing game where instead of aliens you have various bodily substances. You get to blast

clots, assorted growths and infections and various other nasty squishy things. Technically, it's nothing special, but the idea that it's all set in a body may amuse you.

Program *Fantastic Voyage*
Price £6.95
Micro Spectrum
Supplier Quicksilver
Carlton Lodge
16 Carlton
Crescent
Southampton
Hampshire
SO1 2EJ

FIRING SQUAD

Execution is a very graphic variant of that old pen and paper time-filler, *Hangman*. Where that game involves the gradual hanging of a little stick man who can't be expected to have real human emotions, here you get a little man and full firing squad.

Apart from that you get the usual game - guess a word as quickly as possible. Each guess costs you a little more time and brings death that bit nearer.

The graphics are very well



done with fully animated firing squad and feverish victim, better still are the sound effects as the execution squad march crisply on one by one, click their laser weapons to attention and blast.

Obviously it's a very simple game and that might put you off, but it's well if cruelly done.

Program *Execution*
Price £5.95
Micro Amstrad
Supplier Datacom
407 Hockley
Centre
Hockley
Birmingham

MAGIC MAGUS

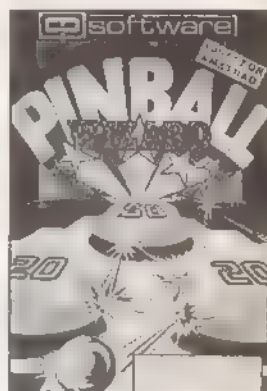
Mighty Magus is another of Quicksilver's recent batch of releases and is an arcade adventure where you move a little wizard figure up and down ladders and staircases, searching for likely-looking objects and doing battle. This may sound horribly familiar, but to be fair to the game there are a few new features - for one thing there are role playing overtones where your battle's outcome depends on your spell and fighting status.

In fact, there is quite a lot to the game and playing it will prove not to be only a matter of left, right, jump. The problem the game has is that it looks unimpressive - like a really bad *Jet Set Willy*.

Program *Mighty Magus*
Price £5.95
Micro Spectrum
Supplier Quicksilver
16 Carlton
Crescent
Southampton
Hampshire

FLIPPERS

More independent software for the Amstrad. This time it's from CP Software and is an adaptation of its *Pinball Wizard*



ard program, widely regarded as one of the best such programs in its previous Commodore 64 and Spectrum editions.

For many the whole point of pinball is the bash thump and kick of the machine in order to win. The actual skill of flipper control is less important - this is not something you'll get from a computer version. On the other hand, you do get a game which tests your flipper adeptness.

The noises, pace and large number of things to bounce on make it pretty compulsive. Even the slightly tinny quality to the Amstrad speaker sounds appropriate.

Program *Pinball Wizard*
Price £8.95
Micro Amstrad
Supplier CP Software
10 Alexandra Road
Harrogate
N. Yorkshire

This Week

Program	Type	Micro	Price	Supplier	Shadowfire	Ad	Commodore 64	£8.95	Beyond
<i>Execution</i>	Arc	Amstrad	£5.95	Datacom	<i>Super Pipeline II</i>	Arc	Commodore 64	£8.90	Task Set
<i>Empire</i>	S	Amstrad	£5.95	Datacom	<i>Colossal Cave</i>	Ad	Dragon 64	£9.95	Compuness
<i>Interplanetary Trav</i>	S	Amstrad	£5.95	Datacom	<i>Adventure Playground</i>	Ad	Enterprise	£7.95	Enterprise
<i>Pinball Wizard</i>	S	Amstrad	£8.95	CP Software	<i>Colossal Adventure</i>	Ad	Enterprise	£9.95	Enterprise
<i>Snail Pace</i>	S	Amstrad	£5.95	Datacom	<i>Fantasia Diamond</i>	Ad	Enterprise	£7.95	Enterprise
<i>Wumpus Mansion</i>	S	Amstrad	£5.95	Datacom	<i>Games Pack I</i>	Arc	Enterprise	£5.95	Enterprise
<i>Quick Thinking Plus</i>	Ed	BBC	£7.95	Mirrorsoft	<i>Games Pack II</i>	Arc	Enterprise	£5.95	Enterprise
<i>Seven Up</i>	Arc	C16	£5.50	Mavac	<i>Animal Vegetable Min</i>	Ad	Enterprise	£7.95	Enterprise
<i>National Soccer</i>	Ad	C16	£5.50	Atlantis	<i>French Is Fun</i>	Ed	Enterprise	£7.95	Enterprise

New Releases

STRIKE GOLD

Velnor's Lair, was, in my opinion, one of the best text adventures ever written for the Spectrum and more than that it was all in Basic. It was a question of the judgment of pace, difficulty level and generally well-written location descriptions that all mixed together to make a thoroughly addictive game.

The game has not only been converted for the Commodore 64, it has been converted at a budget price as part of the Atlantis Gold budget range. This means that you get an adventure well worth the usual £7.95 for a mere £2.99.

Apart from the usual difficult puzzles and seeming dead ends, *Velnor's Lair* has an additional role playing element - you choose a character at the beginning who will be better and worse equipped to solve some of the problems and survive some of the battles.

Quite apart from the price, I'd still put this one into my top ten text adventures and at

£2.99 Commodore adventurers would be crazy not to buy it.

Program *Velnor's Lair*
Price £2.99
Micro Commodore 64
Supplier Atlantis
19 Prebend Street
London N1 8PF

PHYSICAL

Bruce Lee is another US Gold release released on both the Commodore and Spectrum. It's a sort of *Manic Miner* with physical violence which is, I suppose, in games terms a good thing.

The look of the game is pretty much classic platforms and ladders in an Eastern setting, ie, there are a couple of Dragon designs and some Chinese-looking mountains. The aim of the game is horribly familiar; collect the magic lanterns on each screen and an exit opens up - get through to the wizard who dwells within the deepest recesses of the Temple.

All the above is thoroughly boring and dull; however, the game has some good points. For one thing what makes each screen difficult is not bouncing and hopping (wacky) sprites but attack from a couple of really vicious martial arts experts - the ninja with their bokken sticks (bokken sticks are very threatening even though bokken looks like broken) and, even worse, the Green Yamo who runs after you trying to bash your brains in.

To get through each stage you'll need to fight back - your Bruce Lee character can run, kick, chop and leap to this end. To avoid the green Yamo you may also want to



duck quite a lot. In fact the fighting assumes far greater importance than the collecting - the collecting bit is really something to hang the fights on.

I would say a joystick is a must and if you like violent games you'll love it.

Program *Bruce Lee*
Price £9.95
Micro Spectrum
(+ CBM 64)
Supplier US Gold
Unit 24
Tipton Trading
Estate
Bloomfield Road
Tipton
West Midlands

ATLANTIC SUB

Parky and the Yellow Submarine is the first in a series of games based around a South Atlantic penguin called Parky a cute animated character from the Hungry Horace, Cuthbert(?) school of salesmanship and media product identification.

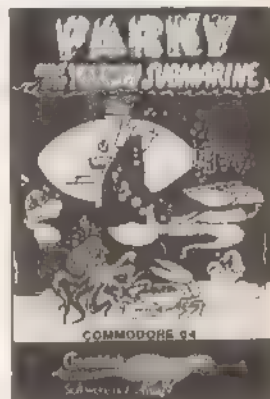
This adventure has Parky

trying to find his way through 91 caverns in the depth of the ocean seeking his twin brother Perry (same sprite, I guess) collecting useful objects as he goes and avoiding literally dozens of moving sprites.

The yellow submarine of the title is in three bits located in various sections and has to be collected in the right order before Perry can be found.

Beyond that there isn't much to say about the game, it is of the style that probably began with the Atari-based *Caverns of Mars* game and not greatly changed since then.

There are zillions such



games about and the only virtue of this one is that 91 screens is quite a lot and parts of it are really awesomely difficult (if you think that's a good thing).

Program *Parky and the Yellow Submarine*
Price £6.95
Micro Commodore 64
Supplier CheetaSoft
24 Ray Street
London EC1



This Week

German Fun	Ed	Enterprise	£7.95	Enterprise
Happy Letters	Ed	Enterprise	£7.95	Enterprise
Word Hang	Ed	Enterprise	£7.95	Enterprise
Dictator	■	Enterprise	£5.95	Enterprise
Five on a Row	S	Enterprise	£5.95	Enterprise
Heathrow ATC	S	Enterprise	£7.95	Enterprise
Steve Davis	S	Enterprise	£8.95	Enterprise
Area Radar Control	■	QL	£10.95	Shadow Soft
El Dorado	Arc	Spectrum	£1.99	Atlantis
Fantastic Voyage	Arc	Spectrum	£5.95	Quicksilver

Mighty Magus	Arc	Spectrum	£8.95	Quicksilver
Nicotine Nightmares	Arc	Spectrum	£2.99	Atlantis
Self Destruct	Arc	Spectrum	£2.99	Atlantis
Death Race	Arc	Vic-20	£1.99	Atlantis
Super Breakout	Arc	Vic-20	£1.99	Atlantis
The St Leger	S	Vic-20	£4.95	Mavac

Key: Ad - adventure. ■ - strategy-simulation
Arc - arcade. Ut - Utility
■ - education.

Pick of the week

IRON DRIVE

The long-awaited *Shadowfire* is now released - it is an adventure game that uses icons to issue commands rather than text. Although the graphics are static, they are remarkably detailed.

The idea is that you control a set of adventurers whose task it is to rescue an Ambassador who is vital to the continued existence of the universe. Every command is expressed by pointing a cursor, under keyboard or joystick control, at an icon which represents the command idea, eg, to pick up something you point at a design of a hand carrying a case.

Each adventure has different strengths and weaknesses and so is more or less useful at different times and each carries different objects. Many actions require a fairly complex series of commands which can be difficult to understand - you are helped by the fact that some commands will only activate at certain times; for example, when movement becomes possible the direction arrows 'fill in' their outlines.

From time to time battles

ensue and the choice and use of weapons is made from a special screen of command icons - there are options to retreat if the going gets tough. The business of knowing what character to use where, what special strengths each character has (one character, for example, can pick locks) is what forms the guts of the game.

In fact, *Shadowfire* is not really an adventure at all; it is far more like *Lords of Midnight*, particularly when played as a wargame. It's all about energy, strengths, tactics and the rest. It is graphically superb and seems very complex - it's going to be a game to savour over some months and I can't pretend to have cracked even a small percentage of the game - expect to see it in Tony Bridge's corner soon.

Program *Shadowfire*

Price £9.95

Micro Commodore 64

Supplier Beyond

Durrant House

Herbal Hill

London EC1R 5EJ

GOOD OLE BOYS

Let me be honest. *The Dukes of Hazzard* is one of those TV programmes that makes me want to turn over to Open University programmes on Social Geography (E107) or even *The Price is Right*. All that 'yee hah' 'good ole boy' stuff makes me ill. I have no idea if this loathing affects or

is even relevant to my assessment of the computer game from *The Dukes of Hazzard* but I thought you'd better know.

The program is a road *Track and Field*. Drive your car at breakneck speed by stabbing away at the keyboard, avoid the rest of the traffic and a missile-firing helicopter by changing lanes and chucking sticks of dynamite. It's a simple idea but the

graphics (apart from the usual attribute problems) are good - the animation when the car spins through the air is particularly impressive. The mark of any game which involves stabbing at the keyboard is probably how much your hand hurts afterwards - mine hurt like hell.

The criticism has to be that there is nothing particularly original in the game and there really isn't all that much to the game, but for me it has the enormous virtue of not reminding me at all of the TV programme.

Program *The Dukes of*

Hazzard

Price £6.95

Micro Spectrum

Supplier Elite

55 Bradford Street

Walsall

EDUCATION

Quick Thinking Plus is a souped-up version of the original Spectrum *Quick Thinking* program that formed part of the first batch of Mirrorsoft titles. The program is also available for the BBC and Electron.

It's worth mentioning this slightly changed version to BBC owners since it is one of the very few educational titles that makes any real attempt to entertain children into learning. Since the BBC is supposed to be, amongst other things, an educational tool, *Quick Thinking Plus* is a useful piece of software.

There are two parts to the program, *Multivaders* where invaders are blasted by the correct solution to multiplication problems.

My favourite is the other program, *Robot Tables*



where the different multiplication tables are tested. This involves a very bizarre-looking robot-making machine where robots are put together - the parts shunt along a conveyor belt and in order to be assembled correctly need you to answer the multiplication table question at the bottom of the screen. The right answer gives you a finished robot, a wrong or slow answer and you get very strange objects indeed. It catches the eye and is funny; kids will love it.

Program *Quick Thinking*

Plus

Price £7.95

Micro BBC (and most others)

Supplier Mirrorsoft

Holborn Circus

London EC1P 1DQ

Compiled by Graham Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases, Popular Computing Weekly, 12-13 Little Newport Street, London WC2R 3LD.

This Week

Atlantis, 19 Prebend Street, London N1 8PF. 01-226 6703. **Beyond**, Leclor Court, 153 Farringdon Road, London EC1R 3AD. 01-837 2699. **CP Software**, 10 Alexandra Road, Harrogate, Yorkshire HG1 5JS. **Compuserve**, PO Box 169, 286d Green Lanes, London N13 5TN. 01-882 0881. **Datacom**, 407f Hickley Centre, Birmingham B18 6NF. 021 233 1800. **Enterprise**, 31-37 Hoxton Street, London N1 6NJ. 01-739 4262. **Mavac**, 101a Underdale Road, Monkmoor,

Shrewsbury, Shropshire SY2 5EF. **Mirrorsoft**, Mirror Group, Holborn Circus, London EC1P 1DQ. 01-353 0246. **Quicksilver**, Palmerston Park House, 13 Palmerston Road, Southampton, Hampshire SO1 1LL. 0703 20169. **Shadow Soft**, 70 Gooseacre, Cheddington, near Leighton Buzzard, Beds. 0296 668740. **Task Set**, 13 High Street, Bridlington, YO16 4PR. 0262 673798.



In the future

Does the 68000 32 bit chip have a future? The short answer is yes, obviously. But where? Not I venture to suggest in the home. The 68000 Family is extremely powerful and enticing (to us programmers anyway) with its 32-bit architecture, multiple registers and ability to address up to 1 megabyte of memory.

I am an experienced Z80 programmer on the Spectrum and Amstrad. I was prompted by the editorial and Sir Clive's interview in *Popular* Vol 4, No 6 into thinking that, when the new Commodore and Atari 68000 computers come out, those programmers who had learnt 68000 on the QL would have a distinct advantage over me. So I thought, 'Perhaps I should get a QL and learn 68000 so that when the 68000 computers take over from the Z80 I won't be left behind.'

However, the sales figures that are now coming out after Christmas - 200,000 Amstrads, 36% of Christmas sales to Sinclair, 25% to Commodore, 8% to Amstrad, a similar amount to Acorn and particularly the QL sales (44,300 sold so far) lead me to believe that the public does not need powerful computers. It shows that they are interested in cheap computers with reasonable specification for entertainment rather than powerful expensive computers for practical purposes.

No-one in their right mind keeps their bank statements on a computer. It's a waste of time. I keep my accounts on paper and I can update and refer to them in less time than it takes to boot up and initialise my TRS-80 III.

Computer technology in the home has far exceeded the uses people have so far contrived for its power. The only real use for computers in the home is word processing and this is uncommon because it's not usually worth the effort and has the added expense of needing a printer. The 68000 chip, its power and memory capacity are, at present, of no real value in the home. I predict that the sales of such machines will be significantly lower than the manufacturers would like. A chip with that power must have a mass storage device (Microdrives, disc, etc) the price of which has to be in the £3-400 range and the public don't want to pay that much.

The software houses know this and that is why there is little software for the QL. It's nothing to do with the processor being hard to learn after 8 bit chips. It's simply that they don't think it will sell and so they are not going to write for it because there is no money in it. I was offered by my main software house the choice of an Amstrad, QL or MSX. I knew I couldn't make any money from QL games so that was out. The MSX was nothing exciting thing in a range of different colours. The Amstrad was the only exciting thing in that it had its own monitor. Even so the Amstrad has not sold in block-buster quantities, not because it is too expensive relative to what it is, but it is simply too expensive.

The same fate will befall all 68000 computers that has befallen the QL. People are unlikely to buy a £400 computer as their first - they are far more likely to go for something like the Spectrum first and then they will realise that they do not need a 68000 computer. Computers such as the Spectrum (good and cheap) have a lot more life in them than the 68000 makers would have us believe. I am not now going to buy a QL. I will reassess the situation in six to eight months but, unless someone thinks of some incredibly useful, cheap and indispensable use for a high speed mass memory computer in the home then I think the only reason I might buy a 68000 computer is for the challenge of learning 68000 code.

Michael Fox

Three-sided

Puzzle No 15

I bumped into Alf the other day in his supermarket, where he is the manager. I mean 'bumped' quite literally, as unfortunately he was putting the finishing touches to a large pyramidal display of tinned fruit at the time. So, I spent the next hour helping him to re-build his display only, rather than have one large pyramid, he decided instead to build two smaller ones. The pyramids were all 'triangular' - that is, each successive tier was in the form of a triangle of tins. So, for example, if the original pyramid had four tiers, it would have a single tin on the top, a 'triangle' of three tins on the second tier, six tins on the third, and ten tins on the fourth. In this case these same 20 tins could also be re-built into two smaller pyramids consisting of three tiers (of ten tins) each.

However, the two pyramids that Alf and I built were of different sizes. What is the smallest number of tins that could have been present if all of the tins from the large display were used in building the two smaller ones?

Solution to Puzzle No 146

As there are 17 different combinations of integers which agree with the information given, there must have been this number of guests. In essence, the problem relates to finding the number of different right triangles having integral sides, one leg of which has the value 144.

```

30 LET A=1
30 LET COUNT=0
30 LET H=SQRT(A*(A+1)*(A+1))
40 IF H=INT(H) THEN PRINT A, H: COUNT=COUNT+1
40 IF H=2 THEN GOTO 70
50 A=A+1
60 GOTO 30
70 PRINT:PRINT:PRINT "TOTAL NUMBER OF
  ALTERNATIVES=";COUNT
90 END

```

The program assigns ascending integral values for the other leg of the triangle, and calculates each successive hypotenuse (equivalent to the diagonal of the lake) and tests to determine if it is integral. Acceptable sets of values are printed and the Count incremented by 1.

Winner of Puzzle 146

The winner is A G Radwell of Long Crendon, Buckinghamshire, who receives £10.

The Hackers



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